Conference Program and Proceedings

Ann & Jack Graves Foundation Conference Series

"Sustainability as a Solution to Global Business Challenges"

April 15 – 16, 2021

THE UNIVERSITY OF TEXAS AT DALLAS
Naveen Jindal School of Management

XAVIER UNIVERSITY

POZNAŃ UNIVERSITY OF ECONOMICS AND BUSINESS

Ann & Jack Graves Foundation Conference

Conference Program and Proceedings

Ann & Jack Graves Foundation Conference Series

Sustainability as a Solution to Global Business Challenges

Richardson, Texas
April 15–16, 2021

Habte G. Woldu
Mike Peng
Agnieszka Skuza
Hubert Zydorek
Baniyelme D. Zoogah
Conference Co-Chairs and Editors

Sustainable Global Business Initiative Center for Global Business

Conference Program and Proceedings of the
Ann and Jack Graves Foundation Conference Series
"Sustainability as A Solution to Global Business Challenges"
Richardson, Texas
April 15–16, 2021

ISSN: 2691-1345

Center for Global Business
Naveen Jindal School of Management
The University of Texas at Dallas
800 West Campbell Road, SB 1.102D
Richardson, TX 75080–3021, USA
Phone: 972-883-6357• Fax: 972-883-6521
E-mail: CGB@utdallas.edu • Web: https://utdallas.edu/

THE DEAN'S WELCOME

On behalf of the **UT Dallas Naveen Jindal School of Management** community, I want to offer you a warm, Texas-style welcome to the inaugural **Ann and Jack Graves Foundation Conference**: Sustainability as a Solution to Global Business Challenges.

Under the auspices of the Jindal School's Center for Global Business (CGB) and the Sustainable Global Business Initiative of the Ann and Jack Graves Charitable Foundation, the conference brings together like-minded scholars, practitioners, policymakers and students involved in different aspects of sustainability as a solution to global business challenges. Conferees will be exploring sustainability as it relates to corporate social responsibility, global business, strategic management, cross-cultural management, technology strategy and global entrepreneurship.

Because we have attracted submissions from Brazil, Britain, Colombia, Kuwait, Nigeria, Norway, Poland, Rwanda, Singapore, Thailand and the United States, there is no doubt in my mind that proceedings will have a truly worldwide perspective on using sustainability to solve business challenges.

As the conference gets underway, let me introduce you to The University of Texas at Dallas and the Jindal School. Blessed by its location in the thriving Dallas-Fort Worth Metroplex, UT Dallas has become one of the best research universities in Texas. With about 9,000 students, the Jindal School is the largest school within UT Dallas, and it has a strong national and international reputation bolstered by high rankings from U.S. New & World Report, Bloomberg Businessweek, the Financial Times, The Princeton Review and others.

Recent U.S. News & World Report rankings put our Full-Time MBA program at No. 31, our part-time MBA program at No. 22, and our MS in Supply Chain Management program at No. 21. The Princeton Review and Entrepreneur magazine ranked our MS in Innovation and Entrepreneurship program No. 10.Research is an integral part of the Jindal School, and 2021 rankings from Financial Times put our faculty at No. 5 in the world in terms of their contributions published in 50 international academic and practitioner journals.

Few universities in the United States offer as comprehensive a set of degree programs dedicated to global business as we do — at the undergraduate, master's and PhD levels. Our world-class faculty publish some of the most influential and widely cited research. Students flock to our programs. Businesses are eager to tap into our talent pool. UT Dallas is truly a center for global business.

We appreciate the extraordinary contributions from the Ann and Jack Graves Charitable Foundation in Dallas. The foundation is led by dedicated Jindal School alumnus Mike Redeker, MBA'97 and MA'01.

We also thank the following co-sponsors: Altair Global, Center for Asian Studies at UT Dallas, City of Richardson, Ericsson, EY, Global Himalayan Expedition, Hewlett Packard Enterprise, HOPE International, Siemens, Pfuma Funds, Poznań University of Economics and Business, Tech Mahindra, Theodore Waddell Designs, US-China Chamber of Commerce, and US-India Chamber of Commerce, and Xavier University.

In closing, I offer you my own and the Jindal School's best wishes for a successful conference.

Hasan Pirkul, PhD
Dean and Caruth Chair

Center for Global Business

Ann & Jack Graves Foundation Conference

Sustainability as a Solution to Global Business Challenges

April 15-16, 2021

TABLE OF CONTENTS

- Dean's Welcome Letter 3
- Table of Contents 4
- Mayor of Richardson Welcome Letter 5
- Conference Co-Chairs Welcome Letter 6
- Program Overview 7
- Program
  - Day One Program and Abstracts 8
  - Day Two Program and Abstracts 15
- Proceedings 22
- Index of Contributors 74
- Acknowledgements 76
- About Sustainable Global Business Initiative 77
- About Center for Global Business 77
- About The University of Texas at Dallas 78
- About Ann and Jack Graves 78
- Conference Sponsors and Partners 79

RICHARDSON®
TEXAS

March 1, 2021

Dear **Ann and Jack Graves Foundation Conference** attendees:

On behalf of the Richardson City Council, I would like to extend a warm welcome to the attendees and speakers at the *Sustainability as a Solution to Global Business Challenges* conference on April 15-16, 2021, at the University of Texas at Dallas Jindal School of Management. For the past 50 years, the University of Texas at Dallas has provided a highly educated, technical and business workforce to support local industries and has hosted many innovative programs and conferences such as this.

Richardson has long been the hub of technology and international businesses in North Texas. Many firms have their U.S. headquarters or a large regional facility within our city limits and hundreds more Richardson firms are doing business globally. With this kind of global economic reach, the Texas State Legislature proclaimed Richardson the "International Business Capital of North Texas" in 2011. Due to our outstanding business climate, there are many foreign-owned companies located here. Richardson is a progressive and diverse community made up of people from almost every part of the world with different backgrounds and diverse cultures, which reflects our unique standing in the Metroplex.

This virtual sustainability conference will offer attendees an opportunity to gain training and instruction and become more informed through networking and sharing their experiences. The sessions and speakers' presentations will enable scholars, practitioners, policymakers, and students to enhance their knowledge about technology and sustainability as a solution to global business challenges. By joining this year's conference, you demonstrate to your peers and others that you strive toward excellence and leadership in your field. We would like to encourage participants and entrepreneurs to continue making positive contributions in their field of work.

I would like to extend my very best wishes for a successful conference and the creation of new connections, partnerships, and business opportunities.

Sincerely,
Paul Voelker
Mayor of Richardson

THE CONFERENCE CO-CHAIRS WELCOME

April 15, 2021

Dear Participants:

On behalf of The University of Texas at Dallas Sustainable Global Business Initiative (SGBI) and Center for Global Business (CGB), we want to welcome all of you to the **Inaugural Ann and Jack Graves Foundation Conference: Sustainability as a Solution to Global Business Challenges**!

Global sustainability is defined by the World Commission on Environment and Development as "the ability to meet the needs of the present without compromising the ability of future generations to meet their needs." It refers not only to a sustainable social and natural environment, but also to sustainable capitalism. Capitalism is at a crossroads. Drivers underpinning global sustainability are complex and multidimensional, debates are numerous, and consequences are far-reaching.

It is our goal to use the conference as a platform to bring together like-minded scholars, practitioners, policymakers, and students involved in different aspects of sustainability as a solution to global business challenges. We will cover the fields of sustainability, corporate social responsibility, international business, strategic management, cross-cultural management, technology strategy, and global entrepreneurship from around the world.

Originally scheduled to be held on the campus of UT Dallas on April 16-18, 2020, our conference has been postponed by one year because of COVID-19. Our format has been transformed to a virtual format. However, by eliminating travel and thus reducing (some) carbon emissions, our participants from many parts of the world in a small but tangible way are contributing to global sustainability.

We are grateful to the Ann and Jack Graves Foundation of Dallas, Texas, led by Mike Redeker, MBA'97 and MA'01, a dedicated alum. It is Mike's endeavors that have turned the Foundation's visions into reality. In addition, we thank the following co-sponsors: Altair Global, Center for Asian Studies at UT Dallas, City of Richardson, Ericsson, EY, Global Himalayan Expedition, Hewlett Packard Enterprise, HOPE International, Siemens, Pfuma Funds, Poznań University of Economics and Business, Tech Mahindra, Theodore Waddell Designs, US-China Chamber of Commerce, and US-India Chamber of Commerce, and Xavier University.

Enjoy the festivities!

Conference Co-Chairs

Habte G. Woldu
The University of Texas at Dallas

Mike Peng
The University of Texas at Dallas

Agnieszka Skuza
Poznań University of Economics and Business

Hubert Zydorek
The University of Texas at Dallas

Baniyelme D. Zoogah
Xavier University, Cincinnati

PROGRAM OVERVIEW

All times mentioned use Central Daylight-savings/Summer Time (CT) (Our time zone is GMT-6—six hours behind Greenwich Mean Time)

Time	Thursday, April 15, 2021	Friday, April 16, 2021
9:30–10:00 a.m.	Check In	Check In
10:00 – 10:50 a.m.	D1.1 Opening Ceremony Day 1 Keynote Speech	D2.1 Day 2 Keynote Speeches
11:00 – 11:50 a.m.	D1.2 Energy Panel: Sustainability of Energy as an Enabler of Economic Development	D2.2 Corporate Panel: Smart City Model for Sustainability
12:00 – 12:50 p.m.	D1.3 Corporate Panel: Technology as an Enabler of Sustainability: How are Global Corporations Realizing Sustainability Goals?	D2.3 University Panel: University Sustainability Development
1:00 – 1:50 p.m.	D1.4 Paper Presentations: Economics, Industries, Alliances	D2.4 Paper Presentations: Managing Global Business Challenges
2:00 – 2:50 p.m.	D1.5 Paper Presentations: Global Business Challenges	D2.5 Paper Presentations: Sustainability and CSR
3:00 – 3:50 p.m.	D1.6 Paper Presentations: Managing Sustainability and CSR Globally	D2.6 Paper Presentations: Agriculture and Food
4:00 – 4:50 p.m.	D1.7 Paper Presentations: Measurement Issues in Sustainability and CSR	D2.7 University Panel: Sustainability Outreach

Ann & Jack Graves Foundation Conference

DAY ONE 15 APRIL 2021

Session: D1.1 / Thursday, April 15, 2021: 10am Dallas, 11am New York, 4pm London, 5pm Warsaw, 8am Los Angeles, 11pm (April 15) Singapore – 50 minutes

OPENING CEREMONY & KEYNOTE SPEECH

Co-Chairs: Habte Woldu, The University of Texas at Dallas, USA; Mike Peng, The University of Texas at Dallas, USA; Agnieszka Skuza, Poznań University of Economics and Business, Poland; Hubert Zydorek, The University of Texas at Dallas, USA; Baniyelme D. Zoogah, Xavier University, USA

Welcome Message: Dean Hasan Pirkul, University of Texas at Dallas, USA

Keynote Speaker: Magali Delmas, University of California, Los Angeles, USA

KEYNOTE SPEECH: THE GREEN BUNDLE: PAIRING THE MARKET WITH THE PLANET

In the process of confronting pollution and climate change, environmentalists have had to grapple with the demands of capitalism. Some see markets and corporations as obstacles to saving the planet, while others seek to use government regulation or litigation to incentivize capitalists to change their behavior, and still others appeal to consumers to limit consumption. But so far, curbs on capitalism have had limited success in mitigating climate change, or producing transformational reversals of environmental damage. How can you change the consumption habits of billions of people? Must people be able to see personal benefits—to their health, finances, or status—before they will choose to live differently? In her book The Green Bundle: Pairing the Market with the Planet, UCLA Anderson School of Management professor Magali Delmas explains how a revolution in sustainability might be achieved by harnessing the natural human urge to consume. Her keynote speech provides highlights of this fascinating book.

Magali (Maggie) Delmas is Professor of Management at the UCLA Anderson School of Management and the Institute of the Environment and Sustainability. She is the Director of the UCLA Center for Corporate Environmental Performance and the Center for Impact at the Anderson School of Management. She conducts research in strategy and corporate sustainability, and has published more than 90 articles, book chapters, and case studies on the subject. She currently works on developing effective information strategies to promote conservation behavior and the development of green markets. Her latest book, The Green Bundle: Pairing the Market with the Planet, is published by Stanford Press.

Session: D1.2 / Thursday, April 15, 2021: 11am Dallas, 12pm New York, 5pm London, 6pm Warsaw, 9am Los Angeles, 12am (April 16) Singapore – 50 minutes

ENERGY PANEL: SUSTAINABILITY OF ENERGY AS AN ENABLER OF ECONOMIC DEVELOPMENT

Moderator: Rajan Kapur, IEEE Smart Village, USA

Panelists:

- Ron Bose, The University of Texas at Dallas, USA
- Wei-Jen Lee, The University of Texas at Arlington, USA
- Paras Loomba, Global Himalayan Expedition, India

Dr. Rajan Kapur started his career at Bell Labs. Since 1985 he has worked exclusively with start-ups, first on mixed signal micro-chip development in the Silicon Valley, and on liquid crystal on silicon micro-display systems in Colorado. In 2006, he transitioned to renewable energy and founded and sold a microinverter company. Now he runs a sustainability incubator in his garage, working with small dispersed teams on early stage projects, with participants from academia and the private sector. His current projects include air-conditioning with thermal storage, electric transportation in hill states in India, and working with IEEE Smart Village partners in Africa, the Americas and South Asia. He holds Electrical Engineering degrees from the Indian Institute of Technology, Kanpur; Rice University, Houston; and the University of Texas at Austin.

Dr. Ron Bose is the Director of the Center for Information Technology and Management at the Naveen Jindal School of Management at UT Dallas. In addition to teaching undergraduate and graduate classes in Information Systems, he mentors students on industry-funded projects in Business Analytics, Machine Learning and Cloud technologies. He is an active member of the IEEE Smart Village (ISV) initiative of the IEEE Foundation that funds local organizations in less developed communities across the world in energy projects that also affect education and local enterprise. These projects support the United Nation's Sustainable Development Goals 7-12. He received his Bachelors in Electrical Engineering from the Indian Institute of Technology, Kanpur; Masters in Systems Engineering from Case Western Reserve University, Cleveland; and Ph.D. in Operations Research from the University of Texas at Austin. He is a Senior Life Member of the IEEE and has served on the Board of Governors of the

IEEE Communications Society and as Technical Editor of IEEE Communications Magazine.

Professor Wei-Jen Lee has been involved in the revision of IEEE Std. 141, 339, 551, 739, 1584, 3002.8, and 3002.9 development. He is the President of the IEEE Industry Application Society (IAS) and editor of IEEE Transactions on Industry Applications and IAS Magazine. He is the project manager of IEEE/NFPA Collaboration on Arc Flash Phenomena Research Project. He has been involved in research on Utility Deregulation, Renewable Energy, Arc Flash Hazards and Electrical Safety, Smart Grid, MicroGrid, Industrial Internet of Things (IIoT) and Virtual Power Plants (VPP), AI for Load, Price, and Wind Capacity Forecasting, Power Quality, Distribution Automation, Demand Response, Power Systems Analysis, Short Circuit Analysis and Relay Coordination, Distributed Energy Resources, Energy Storage System, PEV Charging Infrastructure Design, AMI and Big Data, On Line Real Time Equipment Diagnostic and Prognostic System, and Microcomputer Based Instrument for Power Systems Monitoring, Measurement, Control, and Protection. He has served as the principal investigator (PI) or co-PI of over 100 funded research projects. He has published more than 190 journal papers and 290 conference proceedings.

Paras Loomba is the founder of Global Himalayan Expedition (GHE), a social impact enterprise that provides clean energy access to the remote unelectrified villages of Himalayas through setting up of smart DC solar nano-grids. Over the past nine years, Paras has led several leadership expeditions to Ladakh (India) to provide clean energy and digital education access to remote off-grid communities. His initiative GHE has been instrumental in electrifying 141 remote off-grid Himalayan villages and impacting over 65,000 lives in the process. Paras is inspired by cutting-edge technologies and applies them to create and drive sustainable micro businesses for rural communities. An engineer by profession, Paras merges technology and passion with an approach to entrepreneurial models in these high-altitude areas, advocating the use of sustainable tourism solutions that would eventually provide stimulus to local economy, reduce local emigration, and preserve the age-old Himalayan cultural heritage. For its work in impact and sustainable tourism, GHE received the UN Climate Action Award from UNFCCC in 2020 and the Sustainable Tourism Enterprise Award from World Travel and Tourism Council (WTTC) in 2018. GHE's work has also been highlighted by BBC and National Geographic as one of the "Breakthrough Technologies."

Session: D1.3 / Thursday, April 15, 2021: 12pm Dallas, 1pm New York, 6pm London, 7pm Warsaw, 10am Los Angeles, 1am Singapore (April 16) – 50 minutes

CORPORATE PANEL: TECHNOLOGY AS AN ENABLER OF SUSTAINABILITY: HOW ARE GLOBAL CORPORATIONS REALIZING SUSTAINABILTY GOALS?

Moderator: Srikantan (Tan) Moorthy, Infosys, USA

Panelists:

- John Frey, Hewlett Packard Enterprise, USA
- Bhushan Joshi, Ericsson, USA
- Nikunj Nirmal, Amazon, USA
- Manish Vyas, Tech Mahindra, USA

Tan Moorthy is an accomplished business leader, with over three decades of experience in global IT services industry and expertise in multiple corporate functions such as strategy, operations, education, talent development and technology implementation. Currently, Tan heads the Delivery Operations for the Americas and Education, Training & Assessments at Infosys. An Infoscion during the last 20 years, he has served in the capacity of Head of Application Management and Development and as Group Head of HR at Infosys. Tan is passionate about giving back to the society and has been actively partaking in youth and education related voluntary activities. He is a member of the Association for Computing Machinery (ACM) Professional Development Committee and an advisory member of Infosys Foundation USA. Tan also co-leads a working group for the UN Department of Social and Economic Affairs (UNDESA), to develop industry sector specific sustainability impact metrics.

Dr. John Frey has developed and led HPE's practice for customer collaboration on sustainability and IT efficiency. He partners with HPE's largest customers, stakeholders, and governments to develop net positive solutions to business challenges, share best practices, and drive new business opportunities. He was named an HPE Strategist, the highest level of technical achievement, in recognition of his sustained leadership and contributions. He is a member of the Engineering Entrepreneurship Steering Council at Texas A&M University and Sustainable Brands' Advisory Board.

Bhushan Joshi is Head of Sustainability & Corporate Responsibility for Ericsson in Market Area North America. He has over 15 years of professional experience in corporate sustainability, business development, energy management, renewable energy, sustainability reporting, sustainability strategy development, and program management. At Ericsson, Bhushan advocates for the role of the information communications technology sector in enabling other industries take exponential climate action. He has also focused on developing strategies to help telecom operators achieve their energy and sustainability goals with the introduction of 5G and growth in mobile data traffic. Bhushan has an MBA in sustainable business practices from Duquesne University, and holds undergraduate degrees from Ferris State University and Bharati Vidyapeeth Deemed University. Engage with Bhushan on Twitter @bhushanjoshiCSR or LinkedIn.

Nikunj Nirmal is a business executive, technology enthusiast, and accomplished leader with an extensive experience in digital strategy, intellectual property acquisition, product management, enterprise architecture, and technology roadmap for Fortune 100 organizations. Nikunj has worked in several leadership roles such as Chief Technology Officer, Head of Digital Transformation, Head of Innovation Labs (USA), and IT Delivery Head. With a strong focus on customer experience and innovation, Nikunj has extensive experience in leading large-scale digital transformation programs and delivering technology centric solutions to drive sustainable growth. He has been awarded and recognized through several leadership development programs, including Fellowship. Nikunj serves on the Forbes Technology Council and the Advisory Board for the Center for Global Business at UT Dallas. He has been on the Technical Steering Committee for Linux Foundation for Artificial Intelligence, and has worked as an adjunct faculty member at UT Dallas. Nikunj is passionate about mentoring and building high performance teams.

Manish Vyas is the President, Communications, Media & Entertainment Business; and the CEO, Network Services, at Tech Mahindra – the technology arm of the Mahindra Group. An accomplished leader with extensive expertise and experience across global markets, Manish has led large and diverse global programs during his 26-year career. He is known for his ability of building high-performance teams, and for driving profitability and growth through innovative solutions and go-to-market strategies. He cherishes mentoring young leaders and believes that there is a lot to learn from them. He has been associated with Tech Mahindra for more than 19 years and played a key role in taking Tech Mahindra's Telecom services business to wider geographies and a more diverse clientele. He has been involved in creating the strategic direction to the Telecom & the Networks Services business and in driving various organic and inorganic growth initiatives.

Session: D1.4 / Thursday, April 15, 2021: 1pm Dallas, 2pm New York, 7pm London, 8pm Warsaw, 11am Los Angeles, 2am Singapore (April 16) – 50 minutes
Track: Paper Presentations
Economics, Industries, and Alliances
Moderator: Gregory Dess, The University of Texas at Dallas, USA

Sustainability and net present value criteria

- Anne-Marie Anderson, Middle Tennessee State University, USA
- David H. Myers, Northeastern University, USA

As more firms recognize the need to consider the impact of projects on all stakeholders and not only shareholders, there is a need to adapt our evaluation techniques. Specifically, we propose a modification to standard evaluation techniques that takes into account a social distance factor when determining the appropriate discount rate for project cash flows.

Effectuation approach to sustainability: Scale development

- Banu Goktan, University of North Texas at Dallas, USA

The objective of this study is to develop a scale to measure effectuation approach to sustainability. Existing scales of effectuation measure the general strategic direction of the organization. A growing body of the literature emphasizes the link between resource scarcity, frugal innovation, small business, and an effectuation approach to sustainability. The scale developed in this study will enable researchers to empirically test these relationships.

Relax, the planet will survive!

- John Hulpke, University College Dublin Singapore Office, Singapore

Two issues: The earth is getting warmer and more people are using the resources. However, the earth has been around a long time. If we take the right steps, humans may be around for millions of years. The dinosaurs prove that it is possible. In the 18th century, Thomas Malthus suggested population growth would outrun food supply, basically ending life as we know it. The world's population when Malthus wrote was about 800 million, far below today's more than seven billion. We should slow population growth, and work to minimize the impact of global warming. A long history of exaggerated warnings has damaged the chances of today's predictions being heard. The climate is changing and ice is melting. These are facts. The need is to plan. Planning is absolutely possible. Climate change is coming, but can be managed.

The macroeconomic factors influencing unemployment rate in East African Community

- Award Said Jabran, Independent scholar, Rwanda

Exchange rate volatility affects both the volume and value of trade (Ali, Johari, and Alias, 2014) and the domestic economy as a whole through sectors or firms involved in international trade. These are import and export sectors that employ populations in the nations. Hence, variability in value of currencies of the East African countries with respect to other currencies in the world (exchange rate) must affect the employment rates of these countries. Out of the six East African countries, the IMF annual report on exchange rate arrangements (2014) reveals that Kenya, Tanzania, and Uganda adopt a floating exchange rate system. However, these three countries are the founders of the EAC with a long history of microeconomic ties in policy sharing and desires. Because of that, this study investigates how the microeconomic variables affects unemployment rates in the East African economies with a case focus on Kenya, Tanzania, and Uganda.

Session: D1.5 / Thursday, April 15, 2021: 2pm Dallas, 3pm New York, 8pm London, 9pm Warsaw, 12pm Los Angeles, 3am Singapore (April 16) – 50 minutes
Track: Paper Presentations
Global Business Challenges
Moderator: Jun Xia, The University of Texas at Dallas, USA

Complexity and justice/inclusion: Sustainability, the arts, and global business

- Nancy Bertaux, Xavier University, USA
- Kaleel Skeirik, Xavier University, USA

This paper describes the proposed integration of global business, sustainability, and the arts as a means to increase the speed, depth, and effectiveness of urgently needed systemic change for sustainability. The paper utilizes the authors' model of sustainability and the arts, which outlines three key factors (complexity, justice/inclusion, and modernity) in attaining deep-level engagement through the arts, with the goal of achieving global environmental and cultural sustainability. This paper focuses on the role of the first two factors in global business: complexity and justice/inclusion.

Internationalization of R&D through alliances or joint ventures?

- Shu Deng, The University of Texas at Dallas, USA
- Jiyu Wang, The University of Texas at Dallas, USA
- Jun Xia, The University of Texas at Dallas, USA
- Songcui Hu, The University of Arizona, USA

How do firms select different forms of partnerships—i.e., non-equity-based alliances or equity-based joint ventures (JVs)—in the process of internationalization of research and development (R&D)? We argue that the interplay of information processing and interorganizational learning perspectives can help better understand this decision making. The information processing perspective emphasizes information load as a mechanism of selecting different types of global R&D partnerships, suggesting that a firm with a high information load, as indicated by its partnership diversification, may choose R&D alliances to avoid the problem of information overload. In contrast, the interorganizational learning perspective highlights knowledge transfer as a mechanism, indicating the disadvantage of alliances in the global R&D partnership choice. Furthermore, we argue technological distance and repeated partnership are boundary conditions under which the effect of partnership diversification on the likelihood of selecting alliances is promoted or prohibited. Using a sample of cross-border R&D alliances and joint ventures in a multi-country setting, we find supportive evidence of our theoretical predictions. Overall, this study contributes to the literature on R&D internationalization.

Corporate social responsibility (CSR) in the best European soccer clubs

- Adam Metelski, Poznań University of Economics and Business, Poland
- Jerzy Kazmierczyk, Poznań University of Economics and Business, Poland

Sport uniquely affects society, therefore its use for pro-social activities is justified. This subject is now becoming more popular in the context of advancing commercialization of sport, both in the local and global environment. In the soccer industry, CSR has become an important strategic issue and is more than just a business trend or an optional extra. During the outbreak of the COVID-19 pandemic, it was possible to observe that many soccer clubs, despite their financial losses, were closely involved in their local communities. Sports organizations can also display climate leadership by engaging together in the climate neutrality journey. For example, in the English Premier League, a sustainability ranking is created based on the following categories: clean energy, energy efficiency, sustainable transport, single-use plastic reduction or removal, waste management, water efficiency, plant-based or low-carbon food options, and communications & engagement. These categories reflect the environmental impacts of putting on a soccer match, and initiatives that are underway at clubs. Currently, all major soccer clubs carry out many different activities related to CSR, which should undoubtedly be an example for other less involved clubs, as well as organizations outside of soccer.

Impacts of national congruence and incongruence on international joint venture completion

- Xinrang Wang, University of Missouri, USA
- Shu Deng, The University of Texas at Dallas, USA
- Jiyu Wang, The University of Texas at Dallas, USA

How do repeated ties influence the international joint venture (IJV) completion? We address this question by considering the joint influences of repeated ties held by foreign and local firms and incongruence/ congruence between countries. Repeated ties have often been viewed as an advantage of JV partners, which may help complete the announced IJV deal by the same partners. We argue that the impact of repeated ties on IJV completion depends on whether it meets or violates expectations held by the host atmosphere. Specifically, drawing on expectancy violations theory, we argue that repeated ties as past fulfillment of expectations by IJV partners increase the likelihood of announced IJV deal completion, because past collaborations bring partners into a psychological contract with each other that aligns their expectations for future collaboration. However, such advantage of repeated ties may turn to be a liability when partners' home and host countries experience animosity caused by military conflicts and communication barriers resulting from different languages. Using a sample of announced IJV deals in a global setting, we find supportive evidence of our theoretical predictions.

Effective strategy for the hotel industry in Thailand

- Vissanu Zumitzavan, Khon Kaen University, Thailand

Session: D1.6 / Thursday, April 15, 2021: 3pm Dallas, 4pm New York, 9pm London, 10pm Warsaw, 1pm Los Angeles, 4am Singapore (April 16) – 50 minutes
Track: Paper Presentations
Managing Sustainability and CSR Globally
Moderator: Cuili Qian, The University of Texas at Dallas, USA

Corporate social responsibility consideration in international project management: Antecedents, challenges and performance outcomes

- Sandra Fosuhemaa Adu, Conventry University London, UK

How do stakeholders react if CSR is mandated?

- Nishant Kathuria, The University of Texas at Dallas, USA
- Cuili Qian, The University of Texas at Dallas, USA
- Mike Peng, The University of Texas at Dallas, USA

Integrating stakeholder theory and institutional logics, this study examines the boundary conditions of the impact of corporate social responsibility (CSR) on firm value. CSR can only provide competitive advantage and insurance value to firms when the firms have discretion to perform CSR. This study provides clear evidence that CSR erodes firm value when the institutions force firms to engage in CSR. Leveraging a unique mandate that requires certain Indian firms to spend 2% of profits on CSR during 2010-2013, we show that firms that are affected by the mandate and do more CSR suffer a negative return in performance. However, both prior CSR engagement and better financial performance together help the affected firms to buffer from such events. The implications of mandatory CSR and the influence of institutional changes on value of firm strategies are discussed.

Beyond "Do No Harm:" Corporations, human rights, and activism

- Rita Mota, Oxford University, UK
- Alla D. Morrison, Oxford University, UK

Corporate social responsibility and global environmental regulations: Evidence from the Paris Agreement exit

- S. Drew Peabody, The University of Texas at Dallas, USA
- Hirofumi Nishi, Fort Hays State University, USA
- Carolyn Reichert, The University of Texas at Dallas, USA

Session: D1.7 / Thursday, April 15, 2021: 4pm Dallas, 5pm New York, 10pm London, 11pm Warsaw, 2pm Los Angeles, 5am Singapore (April 16) – 50 minutes
Track: Paper Presentations
Measurement Issues in Sustainability and CSR
Moderator: Baniyelme D. Zoogah, Xavier University, USA

Artificial intelligence as a promising opportunity for attaining the sustainability goals of the European Green Deal

- Dorota Czyżewska-Misztal, Poznań University of Economics and Business, Poland

Artificial intelligence (AI) enables people to rethink how we integrate information, analyse data and use the resulting insights to improve decision-making. While looking at global challenges that the humanity faces nowadays, one needs to enumerate the attainment of sustainability goals. At the European Union level, the European Green Deal has been presented – a set of policy initiatives with the objective of making Europe climate neutral by 2050. The aim of the paper is fourfold: (1) to present the concept of artificial intelligence and its importance for global economy, (2) to explain the European Green Deal objectives and policy areas, (3) to highlight the role of AI for sustainability based on selected projects from the EU member states, and (4) to discuss the challenges for the future in the context of the AI implementation for sustainability. The paper uses descriptive analysis and case studies as research methods. The results show that AI is increasingly present in all spheres of our life, including the attainment of sustainability goals by the EU. The EU is taking initiatives to make the European Green Deal aims implemented, but still higher ambitions are requested in this respect.

Analysis of sustainable community development: A case study of a college town

- Yasmine Ben Miloud, Eastern Illinois University, USA
- Nichole Hugo, Eastern Illinois University, USA

When thinking of community solutions to development, recruiting industries and entrepreneurial initiatives are strong answers. Industry recruitment is the traditional approach, but not always the best solution. Self-development by relying on community involvement to support change and solve problems may show better results. The purpose of this paper is to examine ways for community self-development in a college town. A qualitative study based on interviews with community members was utilized to collect perspectives for how the community could grow in a sustainable manner. Recommendations focus on the improvement of recreational activities and increasing tourism opportunities. The Calgary model of competitiveness reveals a need for substantial effort to support systems to enhance nature-based tourism though.

The effects of environmental performance on competitiveness: A stochastic frontier approach

- Clara Pardo, Universidad del Rosario, Colombia
- Alexander Cotte, Universidad Santo Tomas, Colombia

The main inputs to economy are the environment and natural resources, especially in biodiversity countries. Because of this, they are associated to the competitiveness and efficiency taking into account that natural resources are a factor for production affecting productivity and growth. Moreover, if natural resources will become scarcer, which require to anticipate this change to prevent a decrease on competitiveness. In this context, the analysis of competitiveness and its relationship with environmental performance is an important topic, especially in emerging economies with high biodiversity as a strategy to promote and prevent environmental damage and to improve competitiveness. This study evaluates the effects of environmental performance on competitiveness, using a stochastic frontier approach in Colombian regions using the competitiveness index based on methodology proposed by World Economy Forum for global competitiveness index and different environmental variables. This allows us to understand how environmental performance plays an important role in the results of competitiveness in Colombian regions that evidence economic and social disparities. The results suggest the importance of environmental performance for the increase in competitiveness. Increased environmental performance should lead to an increase in competitiveness. It is important to close regional gaps through political instruments that promote adequate environmental measures that consider competitiveness and innovation to promote sustainable development and the responsible use of natural resources. The findings of this study are important to design adequate instruments that

include environmental performance and competitiveness as key elements to promote sustainability, growth and welfare in Colombian regions.

Analysis of the relationships among sustainability, climate change and innovation in Colombia: An empirical approach

- Clara Pardo, Universidad del Rosario, Colombia
- Alexander Cotte, Universidad Santo Tomas, Colombia

Innovation is a key element in determining new solutions to control contamination, generate new clean processes, prevent and mitigate the effects of pollution, maintain or increase economic growth and development, and guarantee welfare and quality of life. For this reason, the measurement of innovation and its relationship with sustainability and climate change is an important topic, especially in emerging economies that need new strategies to promote innovation to control environmental problems and competitiveness. In this context, this study evaluates through empirical analysis the relationships among sustainability, climate change, and innovation in Colombia, using different econometric techniques and a database that allows us to understand how innovation plays an important role in the sustainability development and economic growth of countries such as Colombia, which is characterized by its environmental wealth, biodiversity, and vulnerability to climate change. The results suggest the importance of innovation for the generation of clean processes and environmentally friendly goods and services and the prevention and mitigation of climate change. Increased innovation should lead to a decrease in pollution, CO2 emissions, and environmental problems, and increase in competitiveness and economic growth. It is important to develop political instruments that promote innovation processes that consider environmental criteria that help innovation generate sustainable development, the responsible use of natural resources and activities that can control and prevent climate change. The findings of this study are important for the design and application of policies that integrate innovation and environment as key elements of economic growth, development and sustainability in countries such as Colombia.

A framework for quantifying the triple bottom line using the balanced scorecard

- Grace Wilken, Eastern Illinois University, USA

Sustainability is expressed in business terms as the triple bottom line (TBL)—considering economic, environmental, and societal well-being. However, traditional key performance indicators in business only measure financial aspects, failing to address society or the environment. Despite the growing demand for and the literature about corporate sustainability, there is not yet a consistent, user-friendly framework for measuring the TBL. This proposed framework—the Triple Bottom Line Balanced Scorecard (TBL-BSC)—expands the traditional balanced scorecard (BSC) to include all three aspects of the TBL in a manner that is both conceptual and quantifiable. It offers leading factors, goals, and measures for all aspects of the TBL. This preliminary TBL-BSC requires further testing and benchmarking. However, it represents another step towards measuring the TBL to incorporate sustainability into business practices.

DAY TWO 16 APRIL 2021

Session: D2.1 / Friday, April 16, 2021: 10am Dallas, 11am New York, 4pm London, 5pm Warsaw, 8am Los Angeles, 11pm Singapore (April 16) – 50 minutes
KEYNOTE SPEECHES
Moderator: Habte Woldu, The University of Texas at Dallas, USA

Keynote Speakers:

- Mike Redeker, Ann & Jack Graves Foundation, USA
- Peter Greer, HOPE International, USA

KEYNOTE SPEECH: CASE STUDY: DEEP DIVE INTO ETHIOPIA

Mike Redeker is a member on the Kennedy Center's National Committee for the Performing Arts, representing the state of Texas. Mike has earned an MBA and a Master of Science from The University of Texas at Dallas and an MA in Biblical Studies from Dallas Theological Seminary. He has served as the Director of Communications for a Christian leadership training organization and Executive Director for a medical/dental organization with medical centers in Romania, Moldova and Guatemala. Having traveled to over 80 countries, Mike has worked directly with leaders in places like Haiti, India, Cuba, Uganda and Eastern Europe. An investor in the undervalued, he currently invests and serves on the boards of: (1) a graduate leadership institute in India, (2) a ministry to cancer patients and their families, and (3) a ministry to refugees from Somalia, Sudan, Iraq, Congo, Ethiopia, Eritrea and Myanmar.

KEYNOTE SPEECH: MICROFINANCE AND POVERTY ALLEVIATION

Peter Greer is president and CEO of HOPE International, a global micro-enterprise development organization serving throughout Africa, Asia, Latin America, and Eastern Europe. Prior to joining HOPE, Peter worked internationally as a micro-finance adviser in Cambodia and Zimbabwe and managing director of Urwego Bank in Rwanda. He is a graduate of Messiah College and received a master's in public policy from Harvard's Kennedy School. Peter has coauthored over 10 books, including Mission Drift (selected as a 2015 Book Award Winner from Christianity Today) and Rooting for Rivals (selected as a 2019 Leadership Resource of the Year in Outreach Magazine). More important than his occupation is his role as husband to Laurel and dad to Keith, Liliana, Myles, and London. For more information, visit peterkgreer.com.

Session: D2.2 / Friday, April 16, 2021: 11am Dallas, 12pm New York, 5pm London, 6pm Warsaw, 9am Los Angeles, 12am Singapore (April 17) – 50 minutes
CORPORATE PANEL: SMART CITY MODEL FOR SUSTAINABILITY
Moderator: Toyah Miller, The University of Texas at Dallas, USA
Panelists:

- Krzysztof Łapiński, EY Technology Consulting, Poland
- Noorie Rajvanshi, Siemens, USA
- Gabriel Shumba, Pfuma Funds, USA
- Paul Voelker, City of Richardson, USA

Toyah Miller is an Associate Professor at the University of Texas at Dallas within the Organizations, Strategy, and International Management area. She received her doctorate in Management at Texas A&M University, and before getting her doctoral degree, she worked as a management consultant. She has published over 14 articles in such journals as Academy of Management Journal, Academy of Management Review, Organization Science, Strategic Management Journal, and Entrepreneurship Theory & Practice. Her research to date has focused on introducing these ideas to four interrelated areas: entrepreneurship, innovation and change, international contexts of business, and corporate governance. She is serving as associate editor for Journal of Management as well as serving on the editorial boards of Journal of Business Venturing and Strategic Entrepreneurship Journal.

Krzysztof Łapiński is the IoT Strategy Leader in the Digital and Emerging Technologies division at EY Technology Consulting. Krzysztof leads the IoT for smart cities offering, tools, and methodologies development of the EY EMEIA Advisory Center. IoT for smart cities services address the strategic implementation of digital transformation, considering city IoT ecosystem development, value creation, interoperability, and monetization of enabled infrastructure and data. Krzysztof led multiple advisory projects for city authorities, including the IoT Business Strategy development for the government of a Smart City in the Middle East; a smart city digital advancement project covering eight major cities in Europe; and smart city strategy development for two cities in Turkey. He is frequently engaged as a subject matter resource in smart city-related projects across the globe. Krzysztof also supports enterprises providing public services to transform their operations to better suit the smart city agenda. Krzysztof holds a

master's degree in psychology in business from Upper Silesian Higher School of Economics in Poland.

Noorie Rajvanshi is Staff Scientist at Siemens with more than ten years of experience in the field of environmental sustainability, energy and urban development. She currently serves as chief data and strategy analyst supporting the US Sustainability Office, working across the Siemens ecosystem of business and corporate units to deliver environmental and business objectives. Her work includes collaborating with colleagues across Siemens to ensure successful implementation of the US Environmental Action plan to decarbonize facilities and fleets. Prior to joining Siemens, Noorie graduated from the University of Florida with a PhD in mechanical engineering and a minor in environmental engineering. Her graduate work was funded through an interdisciplinary NSF-IGERT fellowship program. Following the PhD, Noorie worked as a post-doctoral fellow at the Center for Life Cycle Analysis (CLCA) at Columbia University, studying the impact of crystalline silicone photovoltaics.

S. Gabriel Shumba is an investor, author, fund manager, and structured finance expert. He also advises asset management firms and governments on venture development, capital raising, and portfolio de-risking solutions using structured finance strategies. Gabriel has experience at management and board levels at Group Shumba, D&R Investments, Pfuma Funds, and PwC; and advisory roles at Goldman Sachs, Fortress Investment Group, and Barclays Bank. He has over 20 years of experience in private equity fund administration, structured finance, urban investing, investment structuring, and smart city investment strategies across three continents. Gabriel's core investment experience has mostly focused on real estate, financial services, insurance, mining, and agriculture value chains within South America, Africa, and North America through positions in fund advisory and investment committees for continental private funds within the mid and small-cap sectors.

Paul Voelker has served as the Mayor of Richardson, Texas, since May 2015. His duties include serving as the official community representative for economic development and other city activities, including many that are organized through the Mayor's Office of International Business. Voelker also represents Richardson on the Regional Transportation Council. This is hosted by the North Central Texas Council of Governments, for which the Mayor has served as an Executive Director. Mayor Voelker's past positions include serving as President of the Metroplex Mayors Association and service on the Texas Governor's IT Cluster Committee under the Texas Workforce Commission. His involvement in local education includes past board memberships on the Richardson Independent School District Foundation and the University of Texas at Dallas Jonsson School Industrial Advisory Board Executive Committee. Voelker received a bachelor of arts degree in business administration from William Penn University in Oskaloosa, Iowa.

Session: D2.3 / Friday, April 16, 2021: 12pm Dallas, 1pm New York, 6pm London, 7pm Warsaw, 10am Los Angeles, 1am Singapore (April 17) – 50 minutes

UNIVERSITY PANEL: UNIVERSITY SUSTAINABILITY DEVELOPMENT

Moderator: Carolyn Reichert, The University of Texas at Dallas, USA

Panelists:

- Gary Cocke, The University of Texas at Dallas, USA
- Sarah Easter, Abilene Christian University, USA
- Nichole Hugo, Eastern Illinois University, USA

Carolyn Reichert is a Clinical Associate Professor in the Jindal School of Management at UT Dallas. She is Director of the Master of Science in Finance program and served as Chair of the UT Dallas Sustainability Committee. Her research interests include sustainability, corporate governance, compensation, and real estate; and she teaches courses in financial management. Carolyn is a graduate of The Pennsylvania State University (Ph.D.) and The Ohio State University (B.S. in finance and B.A. in mathematics).

Gary Cocke has led the Office of Sustainability at UT Dallas since 2018, with previous sustainability experience in higher education and municipal government. He is responsible for facilitating the integration of sustainability into campus stewardship, student life, administration, and student learning. UT Dallas as well as universities across the nation and the world track the effectiveness of sustainability programs according to the Sustainability Tracking Assessment and Rating System (STARS Report) administered by the Association for the Advancement of Sustainability in Higher Education (AASHE). As UT Dallas's sustainability program has grown in recent years, UT Dallas earned AASHE STARS Gold certification for sustainability in 2019 for the first time in school history. For continued progress, Gary advocates for

greater emphasis on the connection between environmental stewardship and social justice and has adopted the 17 UN Sustainable Development Goals as the basis for sustainability education and service so that students can better understand the connection between our society and the environment.

Dr. Sarah Easter is an Assistant Professor of Management at Abilene Christian University. Courses she teaches include: Business and Sustainability, International Business, Strategic Management, and Principles of Management. Dr. Easter's research focuses on how individuals, groups, and organizations work together across complex differentiated contexts, with a particular focus on sustainability-related phenomena. She conducts in-depth qualitative research in important substantive domains such as poverty and homelessness.

- Sarah Easter's remarks on the panel draw on a paper that she coauthored with Kim Ceulemans (Toulouse Business School) and Monty Lynn (Abilene Christian University) entitled: "Moving beyond Sisyphus: Pursuing sustainable development in a business-as-usual world."

Dr. Nichole Hugo is an Associate Professor in hospitality and tourism and the graduate coordinator of sustainability at Eastern Illinois University. Courses she teaches include: Destination Management, Sustainable Communities, and Intro to Sustainability. Her research focuses on sustainable development and marketing related to tourism, particularly in developing countries. Other research includes examining lodging operations and events to see how they can improve upon their environmental impact and their connection to the community.

- Nichole Hugo's remarks on the panel draw on a paper that she coauthored with Yasmine Ben Miloud (Eastern Illinois University) entitled: "Analysis of sustainable community development: A case study of a college town," whose abstract appears in D1.7 on page 13. The full paper is in the Proceedings on page 60.

Session: D2.4/ Friday, April 16, 2021: 1pm Dallas, 2pm New York, 7pm London, 8pm Warsaw, 11am Los Angeles, 2am Singapore (April 17) – 50 minutes
Track: Paper Presentations
Managing Global Business Challenges
Moderator: Seunghyun Lee, The University of Texas at Dallas, USA

Lowering transaction costs in internationalization through Fairtrade

- Afonso Lima, Universidade de Fortaleza, Brazil

Among contemporary issues in international business, the link between sustainability and internationalization still provides various perspectives yet to be explored. In this paper, we (a) discuss key aspects of Fairtrade, a trade initiative based on economic, social and environmental practices; (b) review the main contributions of transaction cost theory (TCT) to international business (IB); and (c) explain how Fairtrade Certification (FC) contributes to international entry and adaptation of firms. Overall, we argue that FC is both a market strategy and a nonmarket signaling strategy, which may in turn reduce transaction costs in internationalization.

Sustainability of International Public Sector Accounting Standards (IPSAS) in Nigeria: A review of public sector financial control

- Robert Nnachi, Alex Ekwueme Federal University Ikwo, Nigeria

This study examines the effect of International Public Sector Accounting Standards (IPSAS) implementation in Nigeria on fraud prevention as it affects the public sector fund management. The specific objectives were to determine the relationship between the implementation of IPSAS and fraud prevention, financial control and quality of financial reporting. The work used a sample of 62 respondents comprising mainly of professionals in the field of accounting, including accountants and internal auditors drawn from six States' Ministries of Finance and Audit Offices. Data were collected using structured questionnaire and analysed using frequency distribution tables, analysis of variance (ANOVA), and linear regression techniques. The results indicate that implementation of IPSAS had a positive and significant effect on fraud prevention, financial crime control and quality of financial reporting in Nigeria. It was also found that IPSAS is strongly and positively related to fraud prevention, financial crime control and quality of financial reporting in the Nigerian public sector. Based on these findings, the study therefore recommended that the Federal Government of Nigeria put in place an enabling legislative framework designed to ensure the full implementation of IPSAS in the country; also, that state governments in Nigeria should engage professionals to domesticate IPSAS in their various states or even involve experts and professionals to enable the entire public sector space in Nigeria to leverage the best practice via trainings and programmes on IPSAS.

The 4Cs of MNE strategic responses to global governance

- Sheila M. Puffer, Northeastern University, USA
- David Wesley, Northeastern University, USA
- Luis Dau, Northeastern University, USA
- Elizabeth Moore, Northeastern University, USA

Published in Advances in Global Leadership, Volume 13, Joyce Osland, Mark Mendenhall, B. Sebastian Reiche, and Betina Szkudlarek (Editors), Emerald Publishing, Bringley, UK.

This paper centers on the global leadership of enterprises and their strategic business decisions as they interact with international governmental organizations and nongovernmental organizations in constructing a supranational global governance regime to address complex global issues. As the world faces myriad issues that transcend state borders, negative externalities of globalization, such as climate change and pandemics, are straining the current system and threatening vulnerable populations. To better understand how firms address these challenges, we present a stakeholder framework involving MNEs in a supranational context and examine their relationships with international government organizations (IGOs), international nongovernmental organizations (INGOs), and nongovernmental organizations (NGOs). A typology of firm behavior is introduced to describe four strategic responses to increased pressure for corporate social responsibility that represent the extent to which firms take leadership roles. Case studies illustrate each of the four archetypes, namely the collaborator, the complier, the counteractor, and the combatant. The situational strength of global governance organizations can have an influence on which strategic response MNEs choose, and ultimately on how MNEs decide to engage in socially responsible behaviors. The interrelatedness of MNEs and global governance organizations will continue to grow as humankind grapples with complex global issues that threaten our way of life. The 4 Cs of MNE strategic responses inform how firms may choose to respond to these challenges.

Foreign directors and corporate governance in Islamic banks

- Majdi Quttainah, Kuwait University College of Business Administration, Kuwait

Research Question/Issue: We examine whether foreign directors' influence on opportunistic behavior among managers varies between Islamic and conventional banks.

Research Findings/Insights: Based on a large sample of 3,758 bank-year observations for 164 banks over the period 1993–2015 and consistent with our hypotheses, we show that opportunistic behavior among managers is lower (higher) in Islamic banks (conventional banks) that have foreign directors. We also find that the presence of foreign directors in IBs with Shari'ah boards curbs management opportunistic behavior more than the presence of foreign directors in IBs with no Shari'ah boards.
Theoretical/Academic Implications: Our theoretical framework combines the agency, contingency, resource-dependence, stewardship, and stakeholders' theories and applies them to Shari'ah as an alternative ethical and internal governance mechanism. We find that the impact of foreign directors on management opportunistic behavior depends on the corporate religious norms within BODs, in particular, suggesting that religious values affect how foreign directors influence bank managers' behavior.
Practitioner/Policy Implications: We attribute our findings to the ethical principles and moral values shaping Islamic banks and to the role of Shari'ah boards, which foster Islamic principles and help foreign directors mitigate opportunistic behavior among Islamic bank managers.

Session: D2.5 / Friday, April 16, 2021: 2pm Dallas, 3pm New York, 8pm London, 9pm Warsaw, 12pm Los Angeles, 3am Singapore (April 17) – 50 minutes
Track: Paper Presentations
Sustainability and CSR
Moderator: Shawn Carraher, The University of Texas at Dallas, USA

Sustainable design and sustainability goal achievement: A systematic review

- Jacques Alexis, Northeastern University, USA
- Sherese Bishop, University of Maryland Global Campus, USA

Strategy consultants and organizational leaders have long recognized the importance of sustainability for a firm's competitive advantage and future performance. However, research and guidance on how to link a firm's sustainability practices to its sustainability strategic goals are scattered, conflicting, and inconsistent. The aim of this paper was to explore the role of sustainable design in achieving a firm's sustainability strategies. A thematic analysis of 30 peer-reviewed articles randomly selected from a sample frame of 56 screened and qualified articles was performed to synthesize the evidence and offers the first systematic review on the relationship between sustainable design and the achievement of a firm's

sustainability strategies. The studies included 7 industries, 21 countries, and covered the period 2007-2019. The findings reveal that design for sustainability (DfS) is a key factor in achieving a firm's sustainability strategies.

A meeting of minds: A culturally and technologically enabled approach to supporting sustainable development in emerging economies

- Jumanne Donahue, PhD graduate of The University of Texas at Dallas, USA

This paper explores a technological approach to encouraging entrepreneurship, human development, human capital cultivation, and collaboration in emerging economies. This examination begins by describing a general human tendency towards excess, a Runaway Effect, which generates sociocultural problems that manifest in entrepreneurship, human development-capital cultivation, and collaboration. Secondly, critical conceptions of entrepreneurship, human development-capital cultivation, and collaboration are defined. These inform the development of a culturally-aware, science of complexity-informed, sociotechnical system—Wheel-SaaS—for constraining the Runaway Effect in all areas. The Wheel-SaaS aims to help participants establish a Common Moral Position (CMP), or group rationality, across individuals, social groups, and goals. A CMP serves as a foundational social field for a marketplace where values, needs, wants, abilities, relationships, problems, and potential synergies can be identified, resolved, or arranged for mutual benefit. Finally, this paper assesses how the Wheel-SaaS may assist selected projects in the developing world.

Sustainability strategies, environmental and social innovation and its effect on firm performance

- Fanny Hermundsdottir, Norwegian University of Science and Technology, Norway
- Arild Aspelund, Norwegian University of Science and Technology, Norway

How do firms use sustainability signaling to harvest a profitable position?

- Piyushi Sharman, Kent State University, USA

Session: D2.6 / Friday, April 16, 2021: 3pm Dallas, 4pm New York, 9pm London, 10pm Warsaw, 1pm Los Angeles, 4am Singapore (April 17) – 50 minutes
Track: Paper Presentations
Agriculture and Food
Moderator: Agnieszka Skuza, Poznań University of Economics and Business, Poland

Sociality, health-orientation, and mindfulness as factors contributing to the growth of well-being and sustainable food consumption

- Ewa Jerzyk, Poznań University of Economics and Business, Poland
- Anna Rogala, Poznań University of Economics and Business, Poland
- Renata Nestorowicz, Poznań University of Economics and Business, Poland

The aim of this paper is to analyze the influence of consumers' attitudes, their mindfulness and level of socialization on SWB and FWB, and to find out whether the obtained results may be used for developing sustainable dietary behaviors. The survey was conducted online (CAWI) on a sample of 1,067 adult Polish respondents. The following scales were used: Satisfaction With Life Scale (SWLS), Satisfaction with Food-related Life Scale (SWFL), Health Taste Attitude Scales (HTAS) and Social Dimension of Food Meaning from the scale Meaning of Food in Life (MFL). The questionnaire included other questions related to the frequency and preferences for buying various food categories. In order to discover how attitudes to eating and mindfulness affect the levels of SWB and FWB, we used regression models. In our analyses, we also took into consideration the e-health literacy and sociodemographic characteristics of respondents. Our study stresses the need for developing sustainable dietary behaviors that takes into consideration environmental aspects, showing the so-called moral dimension of consumption (Silczenko and Askegard, 2020).

Unlocking the power of smallholder farmers for sustainable agriculture in southern Africa: A Zimbabwe case study

- Steven Malecek, Water Pathways, LLC, USA
- Raphael Mthombeni, Intuba, Zimbabwe
- Lashier Ncube, Turning Matabeleland Green, Zimbabwe

Smallholder famers are destined to play an increasingly important role in food security in Africa, owing to growing urbanization, their being currently responsible for 80% of food production in sub-Saharan Africa, and expected further development of uncultivated land for agriculture where smallholders will continue to play a major role. Despite their significance, smallholder farmers face numerous challenges that stand to limit their potential. These include inadequate infrastructure and public services, lack of access to water, energy, and other agricultural inputs, insecurity with land tenure, and financing constraints. This study did not attempt a comprehensive assessment of these challenges, but rather applied a case study

approach to examine key issues for smallholder farmers in the vicinity of Bulawayo, in southern Zimbabwe. A value chain model conveyed the case study scenario which involved Hamara, a local food processing and retail company, smallholder farmers, and a partnership between Hamara and TMG, a non-profit training organization for Hamara. Also setting the stage for smallholder sustainability is Intuba, a non-profit organization with water and agriculture projects across a five-country region in southern Africa, including Zimbabwe. The study highlighted three key factors in establishing sustainable smallholder agriculture: training, partnerships, and market access. An apprenticeship program supported by Hamara and community outreach training provided by TMG equip smallholder farmers with both agriculture and business skills. Partnerships facilitate training and leverage the regional project work of Intuba with water supply, solar pumping, drip irrigation, and raised bed farming methods for rural communities. Market access, being pivotal in enabling sustainable smallholder agriculture, is realized through an innovative contract farming, out-grower model established by Hamara. Similar models have received growing attention from smallholder organizations in Africa.

Do the criteria of rejection depend on food freshness? A sensory study

- Maria Sielicka-Różyńska, Poznań University of Economics and Business, Poland
- Urszula Samotyja, Poznań University of Economics and Business, Poland

Food acceptance is a complex process. In certain situations, consumers rely on their sensory perception, whereas in other situations they rely entirely on on-pack information, including the expiration dates. It is highly related to perceived food risk and individual assessment of product quality and safety, thus might be more influenced by one or the other factor. Therefore, this study aimed to investigate how the criteria of product rejection change with product's loss of freshness. Participants (n = 180) were presented with eight products, each labelled with four different freshness dates showing that the food product is either before or past the expiration. The frequency of indications of various criteria, while rejecting the sample, depended on freshness labelling, date type and food category. The date was a more significant criterion of rejection of food with an exceeded expiration date than its sensory attributes (appearance and smell). High importance of date in the case of expired products marked with the "best before" date may lead to unnecessary products' discard, increasing the total volume of food waste. Educating consumers can contribute to a better understanding of the suitability of a given food product.

Solving difficulties in maintaining continuity of food supply during COVID-19 using modern distribution channels

- Anna Zielińska-Chmielewska, Poznań University of Economics and Business, Poland
- Dobrosława Mruk-Tomczak, Poznań University of Economics and Business, Poland

The issue of maintaining continuity of food supply is ever-present because of the ongoing process of improving the quality standards of raw materials, complying with the procedures in food production, introduction of modern production technology and, above all, due to the large number of actors who are competing for customers in the domestic and foreign food markets. In the coming years, the Polish food processing sector will be facing significant challenges with the inevitable slow and gradual decrease in the cost advantages of raw materials' prices, as well as ready to eat products. In the long run, enterprises, as they constitute the majority in manufacturing business, will need to determine the efficiency and hence the competitiveness of the inland food industry. The aim of the study is to review the domestic and foreign literature in terms of classification and systematization of the concept of food supply and food security in food industry on a global perspective. In the theoretical part of the study, methods of descriptive, comparative, deductive and synthetic analysis are used. In the practical part of the presentation selected, adequate for efficiency, measures such as survey method and face-to-face interview, case studies, a simple flashback, and transfer of ideas are presented. The results are based on the authors' own calculations, as well specific findings from business practice both from inland and abroad. The case studies come from such countries as the USA, China, India, Australia/New Zealand, Europe, and Russia.

Session: D2.7 / Friday, April 16, 2021: 4pm Dallas, 5pm New York, 10pm London, 11pm Warsaw, 2pm Los Angeles, 5am Singapore (April 17) – 50 minutes

UNIVERSITY PANEL: SUSTAINABILITY OUTREACH

Moderators: Habte Woldu and Hubert Zydorek, The University of Texas at Dallas, USA

Panelists:

- Navid Hanif, United Nations
- Zhu Lei, The University of Texas at Dallas, USA

- Casey Jacob McMullin, The University of Texas at Dallas, USA
- Hassan Mohamed Seoudi, The University of Texas at Dallas, USA

Mr. Navid Hanif is the Director of the Financing for Sustainable Development Office of the United Nations Department of Economic and Social Affairs (UNDESA). He is also the UN sous Sherpa to the the G20 finance and main tracks. He joined UNDESA in 2001. He was Senior Policy Adviser in the Division for Sustainable Development and member of the team for the World Summit on Sustainable Development held in Johannesburg in 2002. He later joined the office of the Under-Secretary General for UNDESA and focused on departmental initiatives in various policy areas. He worked as the Chief of Policy Coordination Branch in the office for Economic and Social Council (ECOSOC) support. He also served as the Director of this office from 2011-2018. He was the first head of the DESA Strategic Planning Unit established in 2010. He was Principal Officer in the Office of the United Nations Secretary-General and worked as a member of the team for the 2005 World Summit. He was Vice-Chair of the UN High Level Committee on Programming (HLCP) and Co-Coordinator of the UN team on repositioning of the UN Development System that led to major reforms in 2018. He has contributed a number of articles on financing and investing in the SDGs in various journals and reports. Hanif has an MIA in international political economy from Columbia University, New York; and an MA in English literature from Government College University, Lahore.

Zhu Lei is an undergraduate junior majoring in Information Technology Systems and Finance at UTD. She is currently the co-president of the Society of Sustainable Business (SSB) and has reconstructed the organization's programs as well as initiated new sustainability projects for local and international communities. Outside of school, Zhu serves on the board of the Malayika Rescue Mission (Uganda) and organizes operations, funding, and technicalities. She currently works as a market research intern at Hartman Income REIT and will be interning as an analyst for MUFG during summer 2021.

Casey McMullin is a graduate student at UT Dallas, studying International Management Studies and is planning to graduate in December 2021. Casey is currently an economic affairs intern for the United Nations (UN) where he is working on financing for sustainable development in the Policy and Development Branch. Prior to working for the UN, he spent several years in financial services as an investment consultant for businesses and individual clients. In 2018, he graduated with a bachelor's degree in financial management and marketing from Abilene Christian University. Internationally, he studied abroad in Shanghai, China, where he took international business law and entrepreneurship courses. He also spent one summer in Tanzania, Africa, developing a self-sustainable microfinance program called Mothers Against Poverty (MAP). Casey grew up in Colorado Springs, Colorado, and enjoys playing ice hockey, being outdoors, and spending time with friends and family. You can connect with Casey on LinkedIn.

Hassan Seoudi is an undergraduate student at UTD studying Global Business with a concentration in Marketing and is graduating in May 2021. Hassan is currently a Corporate Citizenship intern for Avanade where he is working as a lead on several projects such as the Avanade STEM Scholarship program. Other elements of this role have included organizing the annual FUEL Conference, managing many marketing functions for the Citizenship team, and working on the Avanade Give campaign. Hassan is currently Co-President of UTD's Society for Sustainable Business. The organization's mission is to educate students on sustainability and provide a platform for UTD students to execute projects which tackle the UN's Sustainable Development Goals. Hassan spent one summer with SSB in Mekelle, Ethiopia, as the group started a fruit dehydration company run solely by women. The mission of the project was to educate the community on running a business, as well as empowering the women within the community. Hassan grew up in Cairo, Egypt, and is fluent in Arabic, English, and conversational French. His interests include football (soccer), music, food, and travel.

PROCEEDINGS

Ann & Jack Graves Foundation Conference Series

Sustainability as a Solution to Global Business Challenges

SUSTAINABLE DESIGN AND SUSTAINABILITY GOAL ACHIEVEMENT: A SYSTEMATIC REVIEW

Jacques Alexis, Northeastern University, Boston, Massachusetts, USA
Sherese Bishop, University of Maryland Global Campus, Maryland, USA

Abstract
Strategy consultants and organizational leaders have long recognized the importance of sustainability for a firm's competitive advantage and future performance. However, research and guidance on how to link a firm's sustainability practices to its sustainability strategic goals are scattered, conflicting, and inconsistent. The aim of this paper was to explore the role of sustainable design in achieving a firm's sustainability strategies. A thematic analysis of 30 peer-reviewed articles randomly selected from a sample frame of 56 screened and qualified articles was performed to synthesize the evidence and offers the first systematic review on the relationship between sustainable design and the achievement of a firm's sustainability strategies. The studies included 7 industries, 21 countries, and covered the period 2007-2019. The findings reveal that design for sustainability (DfS) is a key factor in achieving a firm's sustainability strategies.

Keywords: sustainability, Sustainable design, sustainability goals, design thinking, design for sustainability, house of sustainability (HoS)

Introduction

For-profit firms can use sustainability practices to achieve above-average sustainability performance in niche markets and subsequently in mainstream markets as demand for sustainable products and services increases (Jones, Willness, & Madey, 2013; Kassinis & Vafeas, 2006). Therefore, sustainability practices will play an important role in a firm's strategy formulation and implementation. Consequently, understanding how to integrate sustainability practices into the strategic and operations management of a firm has become a central concern in many organizations (Jones, Willness, & Madey, 2013). A systematic review of the literature on the role of sustainable design in achieving a firm's sustainability strategic objectives would be beneficial to both scholars and practitioners.

In this paper, we define sustainability as business activities at all levels of the organization that integrate economic prosperity, environmental protection, and social justice (equity) into the organization's culture, that is, its values, beliefs, and processes. This definition is consistent with that proposed by the World Commission on Environment and Development (WCED), which defined sustainability as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987). Further, we adopt Porter's (1992) definition of strategy as deliberately choosing a different set of business activities to deliver a unique mix of stakeholder value (Porter, 1992).

Combining these two definitions, we suggest that a sustainability strategy is concerned with selecting a set of different business activities that integrate the economic viability of the firm, concerns for people, and the physical environment into shaping the future direction of the organization. Adopting a sustainability strategy means differentiating your firm and products by taking a stakeholder approach to the value creation process.

Both researchers and practitioners have shown increased interest in balancing the tensions between sustainability practices and the traditional shareholder-priority view of business management. Exploring and understanding the important role of design in achieving a firm's sustainable strategic objectives is one of many reasons for undertaking this systematic review. In exploring the literature on sustainable design, a few challenges emerge.

First, since the 1987 publication of WCED's report Our Common Future, the literature on organizational sustainability has been growing exponentially; however, it is very fragmented. Instead of building on a common definition, sustainable management researchers have focused on either one or two dimensions of organizational sustainability, ignoring the third dimension. For example, many authors have focused on corporate social responsibility and organizational performance, but they provided only scant focus on the ecological footprint of the organization (see Davidson & Worrel, 1988; Jones, Willness, & Madey, 2013; McGuire, Sundgren, & Schneeweis, 1988; Turban & Greening, 1997). Other authors have focused on the biophysical environment but ignored the social dimension of sustainability. For example, Jennings and Zandbergen (1995) used institutional theory to examine ecologically sustainable organizations; Shrivastava (1995) examined the role of corporations in achieving ecological sustainability. Cortazar, Schwartz, and Salinas (1998) studied the drivers of environmental investments in for-profit organizations using a real options approach; and Dowell, Hart, and Yeung (2000) examined the relationship between corporate global environmental standards and market value. Kassinis and Vafeas (2006) surveyed the impact of stakeholder pressures on environmental performance; de Villiers, Naiker, and van Staden (2011) studied the effect of board characteristics on firm environmental performance; and more recently, Sonenshein, DeCelles, and Dutton (2014) examined the role of self-evaluations in explaining support for environmental problems. Although all these research studies offer great insights into sustainability issues, they examine only one piece of a multi-dimensional puzzle. Sustainability is a systemic issue and must be studied using systems thinking (Hart & Milstein, 2003). One cannot fix one part of a problem and hope for a complete solution. Both research and practice must take a holistic view of sustainability.

Second, current conceptual frameworks on organizational sustainability are excessively vague and do not offer practical guidance for the practicing sustainable manager (see, for examples, Baumgartner, 2014; Crittenden et al., 2011; Oelze et al., 2016; Pies, Beckmann, & Hielscher, 2010). Developing a practical framework on the impact of sustainable design on sustainability goal achievement requires researchers to examine closely the unit of analysis. Researchers have long emphasized the importance of unambiguously identifying the unit of analysis in organizational theory development (Hannan & Freeman, 1977). However, many management researchers continue to not take time to identify explicitly the unit of analysis in their

research studies. Although the model proposed in this paper can easily be generalized to a population of organizations, its unit of analysis is a single business unit or organization.

Finally, systematic reviews typically synthesize evidence on a very specific industry, failing to focus on the firm as a social system. For example, Peloza and Shang (2010) conducted a systematic review of corporate social responsibility activities and stakeholder value, and Meixell and Luoma (2015) synthesized the evidence of the impact of stakeholder pressure on sustainable supply-chain management. Similarly, Dienes, Sassen, and Fischer (2016) compiled evidence on drivers of sustainability reporting, and Glienke and Guenther (2016) synthesized the empirical evidence of corporate climate change mitigation. A recent systematic review by Sonego, Echeveste, and Debarba (2018) reviewed the extant literature on the role of modularity in sustainable design.

Unfortunately, none of these reviews addressed the role of sustainable design in achieving sustainability strategies. Obviously, this gap in the literature is serious: it is necessary to have a clear understanding of design as a key element of a firm's value chain. Developing a sustainable competitive advantage involves an understanding of a firm's core competencies in its value chain to make tradeoffs among alternative market opportunities.

Therefore, a systematic review of the impact of sustainable design on a firm's strategic goal attainment is necessary. This review makes three important contributions to the management literature:

1) It develops the first comprehensive conceptual framework of the impact of sustainable design on a firm's strategic goal achievement. This conceptual framework is based on a collective body of evidence, and it provides designers with practical insights for competitive product development.
2) It identifies gaps in the organizational sustainability literature and proposes an agenda for future research on sustainable product design.
3) It defines a clear and practical map for the practicing sustainability manager.

Theoretical Background

Sustainability practice, also known as the triple bottom line (TBL), is based on open systems theory, which was pioneered in organizational theory by Katz and Khan (1966) in the 1960s (see Katz & Kahn, 1966). The principal tenet of open systems theory is that organizations are social and open systems that exist in an interdependent relationship with their environments. To function both effectively and efficiently, organizations need resources or inputs such as labor, raw materials, equipment, technology, and space, all of which are acquired from the environment (Aldrich, 2008; Pfeffer & Salancik, 2003). To survive, organizations must be able to effectively exchange resources with the environment, from which they also gain legitimacy (Gifford & Kestler, 2008) and social support (Long & Driscoll, 2007). Theories of organization and environments form a school of thought emerging from the open systems perspective, and scholars often divide organizational environment theories into several frameworks (see Pfeffer & Salancik, 2003; Rivas, 2012; Wry, Cobb, & Aldrich, 2013). Five of these frameworks include contingency theory (Lawrence & Lorsch, 1986), organizational ecology theory (Aldrich, 2008; Hannan & Freeman, 1977), institutional theory (Meyer & Rowan, 1977), resource dependence theory (Pfeffer & Salancik, 2003), and transaction cost theory (Williamson, 1981). The open systems theory of organizations has evolved over time, and organizational sustainability is a modern conceptualization of theories of organization and environments. Corporate sustainability theory integrates corporate social responsibility theories, environmental limits theories, and economic theories of the firm to conceptualize its framework. Sustainability practice requires organizations to explicitly integrate concerns for people, the planet, and profit into the value-creation process (Elkington, 1994, 1997). The most significant change in the conceptualization of organizational sustainability compared to traditional open systems organizational theories centers on the theory's assumption about the role of organizations in society. Because this study focuses on the organization as the unit of analysis, resource dependence theory (RDT) is particularly suitable to explain the behavior of sustainable organizations in open economies. RDT is a common-sense theory that is based on the premise that organizations are not self-contained; they exchange important resources in an interdependent system, with factors both internal and external to an organization shaping the nature of the exchange. Significant forces in the external environment include politics, social forces, consumers, competitors, suppliers and business partners, technology, national culture, and the economy (see Pfeffer & Salancik, 2003). An organization's survival largely depends on its effectiveness in managing environmental forces. However, Child (1972) argued that RDT failed to distinguish between the environment's characteristics and the managers 'perception of the environment; these may occasionally differ when evaluating the environment from diverse perspectives. Similarly, Casciaro and Piskorski (2005) stated that RDT failed to distinguish between power imbalance and mutual dependence, which may pose a conceptual problem when analyzing a firm's alternative strategies. Therefore, we believe that the integration of sustainability in a firm's operations must be intentional; that is; designed and embedded in its culture, strategy, and operations.

Design and Design Thinking

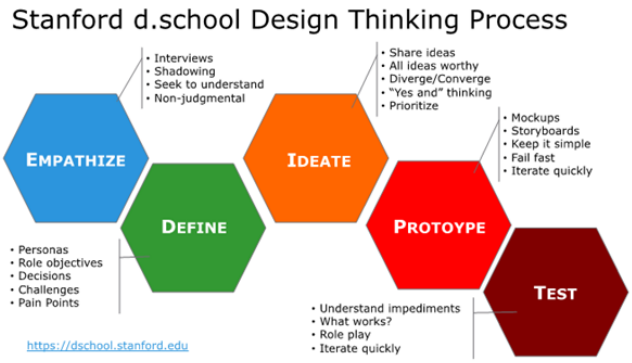
The word "design" has a variety of meanings, and it can be used as both a noun and a verb. In both forms, the concept of design expresses intention or a plan to achieve an outcome, which might be tangible or intangible. A tangible outcome might be a product, and an intangible outcome might be a process or a system. According to the Oxford Online Dictionaries, the word design is used as a noun to mean, "A plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is made," or "The art or action of conceiving of and producing a plan or drawing of something before it is made." It can also mean, "The arrangement of the features of an artefact, as produced from following a plan or drawing," or "A decorative pattern." Finally, the noun design can mean the "Purpose or planning that exists behind an action, fact, or object." When used as a verb, the word design means, "Decide upon the look and functioning of," or "Do or plan (something) with a specific purpose in mind" (Oxford Online Dictionaries, 2020). As a verb, the word design is used to mean, "Decide upon the look and functioning of (a building, garment, or other object), by making a detailed drawing of it," or "Do or plan (something) with a specific purpose in mind" (Oxford Online Dictionaries, 2020).

Design thinking (DT) as a creative process and an academic field has emerged during the last three decades and has been the subject of many research studies (Brown, 2008; Carlgren, Rauth, & Elmquist, 2016; Beckman & Barry, 2017; Dorst, 2011,

Krippendorff, 1989, 2004; Pianesi, 2019; Waage, 2007). Traditionally, the word design was associated with engineering and the conceptualization of physical objects. This perception is reflected in the dictionary definition of the term. However, this view of design has evolved with the emergence of design thinking as a process that can be applied to any field from agriculture to engineering to medicine and education. We define design thinking as the creative and iterative process by which stakeholders intentionally plan and collaborate to achieve an outcome, a goal, or an objective. Designers across industry sectors use design thinking to gain insights about end-users, generate new ideas, build prototypes, assess what works, solve problems, and create new markets – market innovation.

The d. School at Stanford University in California has developed a conceptual framework of the design thinking process as shown in Figure 1. The framework contains five phases: empathize, define, ideate, prototype, and test. Each phase plays a significant role in the value creation process. Our hypothesis is that design thinking can successfully be utilized as a means of integrating sustainability into the value creation process. Conventionally, social scientists use correlation analysis to test their hypotheses. In this paper, we will perform a thematic analysis to explore the relationship between design thinking and achievement of sustainability strategies.

FIGURE 1
Conceptual Framework of the Design Thinking Process by Stanford University's d.school.



Methodology

The literature on sustainable design has been growing exponentially since the 1990s; surprisingly, no effort has been made to translate primary research studies and research reports into a collective body of evidence. Analyzing each individual research study on the relationship between sustainable design and achievement of sustainability strategies will provide useful insights for practitioners. Rousseau (2012) argued that "any single study has limitations; the best evidence comes from multiple studies with different kinds of designs and conducted by different scientists, thus providing independent corroboration that a finding is real" (p. 7). This study adopts a systematic review as its research methodology. A systematic review is an appropriate research methodology when the literature on a management topic is growing, but fragmented and inconsistent (Petticrew & Roberts, 2006). To enhance this study's credibility, this review is limited to research studies published in peer-reviewed journals and focuses on for-profit firms.

For a systematic review, literature searches must take a very systematic approach both to data collection and to research synthesis (Booth, Sutton, & Papaioannou, 2016). 1) We identified keywords or phrases relevant to sustainable design and sustainability strategies. Such keywords or phrases include "Sustainability-Driven Design", "Sustainable Design," "Design for Sustainability," "Sustainable Product Design," and "Sustainab* Strateg*," and 2) the phrases identified in step 1 were combined into search strings using Boolean operators (e.g., OR and AND). Truncation was utilized to ensure that alternative spelling and synonyms for major terms relating to the review question were included in the search results. To avoid language bias, which is a form of publication bias (Booth et al., 2016), the English language filter option was deactivated; 3) the search string developed in step 2 was used in ABI/INFORM (834), Business Source Complete (30), and Science Direct (410); 4) using keywords from the search string developed in step 2, the reviewers automatically searched the titles of the results produced in step 3 to narrow the search results based on the exclusion criteria and then analyzed the abstracts of the articles for inclusion. The primary criterion for selection was relevance and research studies were limited to those that had been the subject of peer review. Seventy-four articles were found to be highly relevant to sustainable design and sustainability strategies. After a full-text analysis, 12 articles were rejected because of a lack of theoretical rigor, and 6 other articles were rejected during the data analysis process because their findings were unclear; 5) all the articles included in this review were assessed using a quality assessment instrument developed by Pittaway, Robertson, Munir, Denyer, and Neely (2004). Studies were assessed on a scale of 0 to 3, 0 being absent and 3 being high. Not applicable (N/A) was used to indicate when a criterion could not be applied to the study being evaluated. Criteria for evaluating primary studies include theory robustness, implications for practice, (methodology, data, and supporting arguments), generalizability/transferability, and contribution to theory or practice.

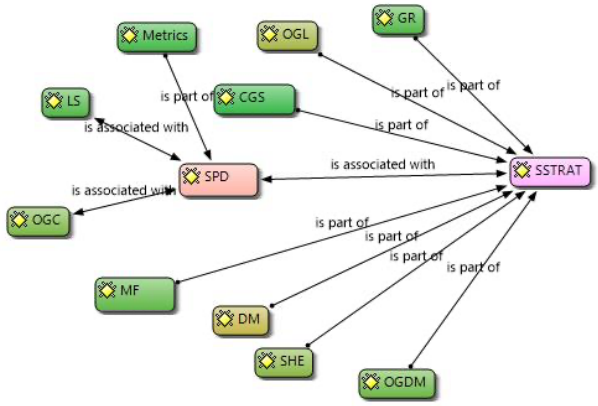
Data Analysis

This study uses thematic data analysis to integrate the findings of the primary studies into a collective whole by identifying and coding key themes that emerged during the analysis (Thomas & Harden, 2008). However, we also use a deductive strategy to test the propositions of the conceptual framework proposed in Figure 1 (Miles, Huberman, & Saldana, 2013). Thematic data

analysis includes three overlapping stages: 1) line-by-line coding of the findings of primary studies; 2) the organization of free codes into related areas to construct descriptive themes; and 3) the generation of analytical themes (Thomas & Harden, 2008). According to Thomas and Harden (2008), thematic data analysis is the most appropriate qualitative data analysis technique when the review's objective is the configuration of the primary data into a cohesive whole and when the reviewer is addressing a small number of primary studies, as in the condition under which this review is being conducted.

Primary studies were imported into the Atlas.ti 7.5.6 (Berlin, Germany) software package. This software program assisted the coding process and the triangulation of data sources. Data triangulation and constant comparison of data sources are necessary steps in qualitative data analysis (Corbin & Strauss, 2014; Miles et al., 2013). Using multiple data sources to compare and contrast findings has the potential to increase the validity of qualitative research. Figure 2 presents a schematic of the themes that have emerged during the thematic data analysis process.

FIGURE 2
Emerging themes from the Data Analysis - Output Generated from Atlas.ti Version 7.5.6



Randomness Test. Good practice in systematic review requires that all available and qualified studies be included in the review. In this study, we decided to use a random sample of 30 studies from a sample frame of 56 qualified studies. Any study from the sample frame is equally likely to be part of the sample. To ensure that our sample is representative of the sampling frame and to eliminate selection bias, we performed a randomness test. A common method for performing a randomness test is the runs test (Swed & Eisenhart, 1943). A run may be defined as a series of values in increasing or decreasing order. The length of a run is measured by the number of increasing or decreasing values. The results of the test are shown in Table 1.

TABLE 1. Runs Test for Included Studies in the Systematic Review

Number of Observations (n)	Number of Runs Observed	Number of Runs Expected
30	16	15.73

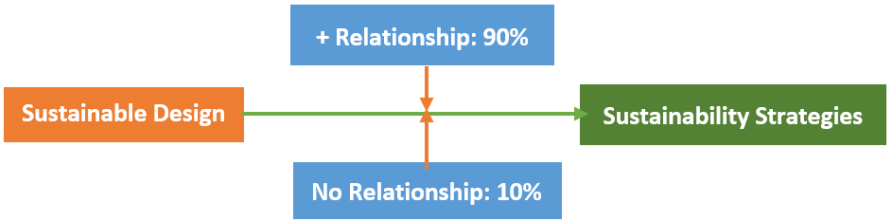
Sampling frame = 56; Sample size = 30; p-value = .920; p-value > .05. Null hypothesis H_0: the order of the data is random. Alternative hypothesis H_1: the order of the data is not random.

Based on our randomness test, we are 95% confident that a thematic analysis of the sampling frame will produce the same result as what we have obtained through the analysis of the sample. We did not have sufficient evidence to suggest that the sample was not random. Therefore, we failed to reject the null hypothesis ($p > .05$).

Findings

The purpose of this study was to examine the relationship between sustainable design and a firm's sustainability strategy achievement. We performed a thematic analysis with Atlas.ti Version 7.5.6 to unpack the findings of thirty studies randomly selected from a sampling frame of fifty-six peer-reviewed articles. The results suggest that organizational sustainability starts with design, including product design, process design, and system design (Lacasa, Santolaya, & Biedermann, 2016; Napolitano, 2013; Santolaya et al., 2019). As shown in Figure 3, 90% of the studies support a positive relationship between sustainable design and sustainability strategy achievement (e.g., De los Rios & Charnley, 2017; De Paula, Arditi, & Melhado, 2017; He et al., 2018). However, we found that there are antecedent and moderating variables that affect the effectiveness of sustainable design. Antecedent variables include organizational culture (Masoumik et al., 2018; Othman, & Abdelwahab, 2018); leadership support (Clark et al., 2009; De los Rios & Charnley, 2017; Othman, & Abdelwahab, 2018), and the existence of a sustainability performance measurement system (Aydin & Badurdeen, 2019; Azkarate et al., 2009; Burte, 2014; Galloway & Newman, 2014; Ræbild & Hasling, 2019; Rahman & Gong, 2016; Riel et al., 2015). Furthermore, the analysis revealed that organizational learning (Linke & Dornfeld, 2012), stakeholder engagement (Petratos & Damaskou, 2015; Riel et al., 2015; Rocha et al., 2019), marketing innovation (Rahman & Gong, 2016), and the organizational decision-making process (Zhou, Yin, & Hu, 2009) have profound impacts on a firm's sustainability strategies. This set of variables can be analyzed as moderating factors in quantitative analyses.

FIGURE 3
Evidence Supporting the Relationship Between Sustainable Design and Achievement of Sustainability Strategies

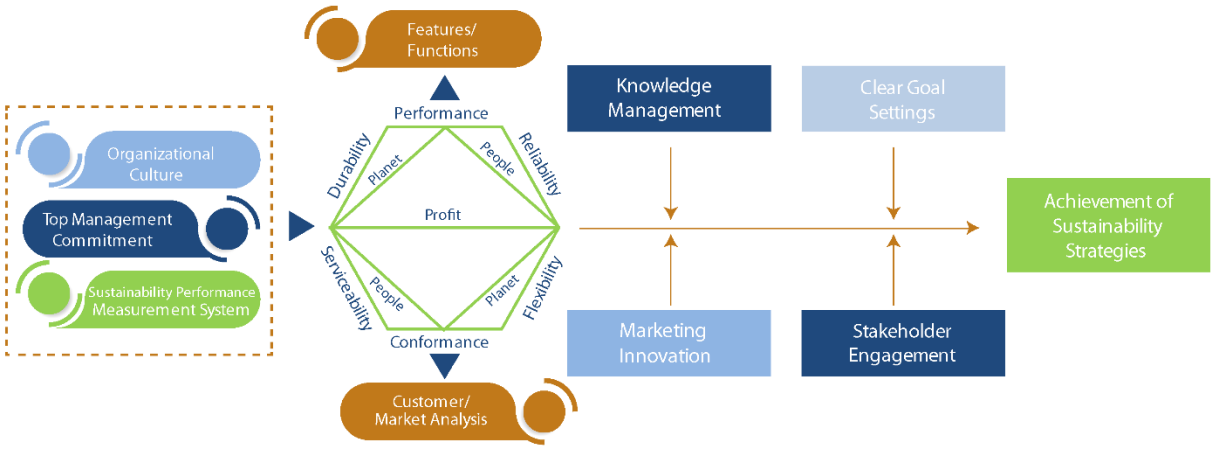


A Conceptual Model of Sustainable Design

Conceptual models, to be useful to practitioners, should be grounded in both theory and practice. Our objective was to develop a robust model that supports sustainable designers. The model proposed below is based on themes that have emerged in the literature on sustainable design, including ten case studies (e.g., Aydin & Badurdeen, 2019; Azkarate et al., 2011). Those case studies were instrumental in developing a conceptual model that can be implemented across industry sectors. The model shows that organizational culture, top management commitment to sustainability, and a performance measurement system are pre-conditions to successfully implement sustainable design within a firm. These variables are called antecedent variables, and they can help explain any cause-and-effect relationship between sustainable design and the attainment of sustainability strategies. We argue that the practice of sustainable design is more likely to succeed if sustainability is embedded in the culture of the firm. A culture of sustainability means that sustainability is integrated into the decision-making process at all levels of the firm (De Los Rios & Charnley, 2017; De Paula, Arditi, & Melhado, 2017).

The practice of sustainable design, which serves as the explanatory variable in this model, is shown in the second section. The model suggests that the three dimensions of sustainability, which are people, planet, and profit, must be embedded in the product development process. Market analytics plays a key role in capturing the voice of the market (VoM) for developing products and services with features and functions that meet both customer and sustainability requirements – conformance and performance. It is important to note that market analytics includes competitive analysis. Sustainable designers cannot ignore the business environment. Flexibility and serviceability express the extent to which a product can be repaired, reused, recycled, repurposed, and adapted to new environments. These dimensions are important for life cycle assessment.

FIGURE 4. A Conceptual Model for the Practice of Sustainable Design



The third section of the model represents the moderating variables, namely, knowledge management, clear goal setting, marketing innovation, and stakeholder engagement. Moderating variables affect the relationship between the explanatory variable and the response variable, which is in our model, Achievement of Sustainability Strategies. This model emphasizes the role of the market, which cannot be ignored in open and competitive economies.

Implications for Practice

The findings of this study have profound implications for sustainable designers. First, we have found that leadership support and the development of a culture that favors change and innovation were necessary conditions to practice sustainable design. Therefore, sustainable designers must understand the environment in which they operate. They must understand the level of support they can expect from the top management team (TMT). Clear goal setting plays an important role in implementing successful sustainability practices. Consequently, a sustainability performance measurement system (SPMS) must also exist

within the firm to facilitate the implementation of sustainable design (Tumwesigye, Oliveira, & Gallagher (2016). A SPMS will allow management to use data analytics to make informed decisions. Designers must be familiar with this system to design sustainable products and services that are aligned with the firm's sustainability strategies.

Design for Sustainability (DfS). Design for sustainability is a sustainability-centered approach to innovation. The d. school's design thinking conceptual framework shows that the design phase of the value chain provides the greatest opportunity to shape a firm's value creation. Although research and development (R&D) will play a crucial role in the innovation process, designers have the power to reduce the social and environmental costs of a product (Waage, 2007) all the while fulfilling the requirements and needs of their customers (Rocha et al., 2019; Romli et al., 2016). To create a sustainable product, the sustainability dimensions must be designed in it. Therefore, designing a sustainable product requires the designer to take a systems approach to the design process (Brown, 2008). Design for Sustainability (DfS) starts with a profound understanding of the world's sustainability challenges. Designers must have an inquisitive mind to ask questions about how those challenges affect their local communities and how the product or service they are designing will contribute to face those challenges. Sustainable product designers might be able to follow the d. school's conceptual framework to design sustainable products. However, the process must start by understanding and integrating sustainability issues into the design process.

The Role of Evidence-Based Decision Making. Due to the increased awareness concerning economic prosperity, environmental protection, and social justice needed to gain a competitive advantage, organizations recognize the importance of instilling sustainability into organizational goals by focusing on the decision-making process (Rocha et al., 2019; Wang, Chang, & Nunn (2010). Sustainability requires organizations to implement core managerial processes at every level. This can be achieved through evidence-based decision-making processes that focus on sustainable commitment towards the organizational goals that lead to increased performance and long-term profit (Ruegemer, 2010). Sustainability calls for organizations to make a shift in their decision-making processes (Sansa, Badreddine, & Ben Romdhane, 2019; Song et al., 2014; Tomovska & Radivojević, 2017). This shift is towards focusing on a shared goal that is multi-dimensional. Sustainable decision-making requires multi-criteria analysis, which contributes to the complexity of the decision-making process. For example, making a sustainable decision based on one element of sustainability could be detrimental to another element. We believe this can be done more efficiently through the inclusion of data analytics.

Data analytics is transforming raw data into insights, which is done through the aggregation, extraction, transformation, presentation, and interpretation of the data. Analytics is a technique that provides answers to specific questions giving organizations the opportunity to find new solutions and develop efficient processes for improvement. Simply put, analytics is the systematic use of data driven related business insights to drive evidence-based decision making to help navigate through the complexities relating to sustainability and enable organizations to gain a competitive edge.

Conclusions

Stakeholder pressure and new trends in consumer preferences have forced many firms to adopt sustainability practices. The purpose of this paper was to explore the role of sustainable design in achieving a firm's sustainability strategies. We proposed a novel conceptual framework for integrating the sustainability dimensions into the design process, which is necessary for a firm to achieve its sustainability strategies. While sustainability starts with clearly defined strategic objectives, a sustainability-centered design is crucial to link strategies to markets. Sustainable design succeeds when designers have a profound understanding of the sustainability challenges that the world is facing and the business environment in which their firm is operating.

Using a systematic review methodology and a thematic data analysis of 30 peer-reviewed research studies, the study identified a set of antecedent and moderating variables that influence a firm's sustainability strategies. The antecedent variables include leadership support, organizational culture, and the existence of a performance measurement system pertaining to sustainability. The moderating variables include organizational learning, stakeholder engagement, marketing innovation, and the organizational decision-making process. Based on these findings, we highlighted important implications for sustainable designers.

References

Aldrich, H. 2008. Organizations and environments. Redwood City, CA: Stanford University Press.
Aldrich, H. E. & Pfeffer, J. 1976. Environments of organizations. Annual Review of Sociology, 2(1): 79–105.
Aydin, R. & Badurdeen, F. 2019. Sustainable product line design considering a multi-lifecycle approach. Resources, Conservation and Recycling, 149, pp.727–737.
Azkarate, A. et al. 2009. An assessment method and design support system for designing sustainable machine tools. Journal of Engineering Design, 22(3), pp.165–179.
Baumgartner, R. J. 2014. Managing corporate sustainability and CSR: A conceptual framework combining values, strategies and instruments contributing to sustainable development. Corporate Social Responsibility and Environmental Management, 21: 258–271.
Booth, A., Sutton, A., & Papaioannou, D. 2016. Systematic approaches to a successful literature review. Thousand Oaks, CA: Sage Publications.
Brown, T. 2008. Design thinking. Harvard Business Review, 86(6), 84–92.
Burte, H. (2014). The critical practice of sustainability. Architecture Design, 31(3), 22-25.
Carlgren, L., Rauth, I. & Elmquist, M. 2016. Framing design thinking: The concept in idea and enactment. Creativity and Innovation Management, 25(1), pp.38–57.
Casciaro, T. & Piskorski, M. J. 2005. Power imbalance, mutual dependence, and constraint absorption: A closer look at resource dependence theory. Administrative Science Quarterly, 50: 167–199.
Child, J. 1972. Organizational structure, environment and performance: The role of strategic choice. Sociology, 6(1): 1–22.

Clark, G. et al. 2009. Design for sustainability: Current trends in sustainable product design and development. Sustainability, 1(3), pp.409–424.
Corbin, J. & Strauss, A. 2014. Basics of qualitative research: Techniques and procedures for developing grounded theory: SAGE Publications.
Cortazar, G., Schwartz, E. S., & Salinas, M. 1998. Evaluating environmental investments: A real options approach. Management Science, 44: 1059–1070.
Crittenden, V. L., Crittenden, W. F., Ferrell, L. K., Ferrell, O. C., & Pinney, C. C. 2011. Market-oriented sustainability: A conceptual framework and propositions. Journal of the Academy of Marketing Science, 39(1): 71–85.
Davidson, W. N. & Worrel, D. L. 1988. The impact of announcements of corporate illegalities on shareholder returns. Academy of Management Journal, 31: 195–200.
De los Rios, I.C. & Charnley, F.J.S. 2017. Skills and capabilities for a sustainable and circular economy: The changing role of design. Journal of Cleaner Production, 160, pp.109–122.
Denyer, D. & Tranfield, D. 2009. Producing a systematic review. In D. A. Buchanan & A. Bryman (Eds.), The Sage handbook of organizational research methods: 671–689. Thousand Oaks, CA: Sage Publications.
De Paula, N., Arditi, D. & Melhado, S. 2017. Managing sustainability efforts in building design,
construction, consulting, and facility management firms. Engineering, Construction and Architectural Management, 24(6), pp. 1040–1050.
Design. 2020. In oxforddictionaries.com. Retrieved February 18, 2020, from https://premium.oxforddictionaries.com/definition/english/design?q=Design de Villiers, C., Naiker, V., & van Staden, C. J. 2011. The effect of board characteristics on firm environmental performance. Journal of Management, 37: 1636–1663.
Dienes, D., Sassen, R., & Fischer, J. 2016. What are the drivers of sustainability reporting? A systematic review. Sustainability Accounting, Management and Policy Journal, 7: 154–189.
Dorst, K. 2011. The core of “design thinking” and its application. Design Studies, 32(6), pp.521–532.
Dowell, G., Hart, S., & Yeung, B. 2000. Do corporate global environmental standards create or destroy market value? Management Science, 46: 1059–1074.
Elkington, J. 1994. Towards the sustainable corporation: Win-win-win business strategies for sustainable development. California Management Review, 36(2): 90–100.
Elkington, J. 1997. Cannibals with forks: The triple bottom line of 21st century business. Gabriola Island, Canada: New Society Publishers.
Galloway, D. & Newman, P., 2014. How to design a sustainable heavy industrial estate. Renewable Energy, 67, pp.46–52.
Gifford, B. & Kestler, A. 2008. Toward a theory of local legitimacy by MNEs in developing nations: Newmont mining and health sustainable development in Peru. Journal of International Management, 14: 340–352.
Glienke, N. & Guenther, E. 2016. Corporate climate change mitigation: A systematic review of the existing empirical evidence. Management Research Review, 39(1): 2–34.
Gough, D., Oliver, S., & Thomas, J. 2012. An introduction to systematic reviews. Thousand Oaks, CA: Sage Publications.
Hannan, M. T. & Freeman, J. 1977. The population ecology of organizations. American Journal of Sociology, 82: 929–964.
Hart, S. L. & Milstein, M. B. 2003. Creating sustainable value. Academy of Management Executive, 17(2): 56–67.
He, B. et al. 2018. Sustainable design from functional domain to physical domain. Journal of Cleaner Production, 197, pp.1296–1306.
Jennings, P. D. & Zandbergen, P. A. 1995. Ecologically sustainable organizations: An institutional approach. Academy of Management Review, 20: 1015–1052.
Jones, D. A., Willness, C. R., & Madey, S. 2013. Why are job seekers attracted by corporate social performance? Experimental and field tests of three signal-based mechanisms. Academy of Management Journal, 57: 383–404.
Kassinis, G. & Vafeas, N. 2006. Stakeholder pressures and environmental performance. Academy of Management Journal, 49: 145–159.
Katz, D. & Kahn, R. L. 1966. The social psychology of organizations. New York, NY: John Wiley & Sons.
Lacasa, E., Santolaya, J.L. & Biedermann, A. 2016. Obtaining sustainable production from the product design analysis. Journal of Cleaner Production, 139, pp.706–716.
Lawrence, P. R. & Lorsch, J. W. 1986. Organization and environment: Managing differentiation and integration. Brighton, MA: Harvard Business School Press.
Linke, B.S. & Dornfeld, D.A. 2012. Application of axiomatic design principles to identify more sustainable strategies for grinding. Journal of Manufacturing Systems, 31(4), pp.412–419.
Long, B.S. & Driscoll, C. 2007. Codes of Ethics and the Pursuit of Organizational Legitimacy: Theoretical and Empirical Contributions. Journal of Business Ethics, 77(2), pp.173–189.
Masoumik, S.M. et al., 2014. Sustainable supply chain design: A configurational approach. The Scientific World Journal, 2014, pp.1–16.
McGuire, J. B., Sundgren, A., & Schneeweis, T. 1988. Corporate social responsibility and firm financial performance. Academy of Management Journal, 31: 854–872.
Meixell, M. J. & Luoma, P. 2015. Stakeholder pressure in sustainable supply chain management: A systematic review. International Journal of Physical Distribution & Logistics Management, 45(1/2): 69–89.
Meyer, J. W. & Rowan, B. 1977. Institutionalized organizations: Formal structure as myth and ceremony. American Journal of Sociology, 83: 340–363.
Miles, M. B., Huberman, A. M., & Saldana, J. 2013. Qualitative data analysis: A methods sourcebook. Thousand Oaks, CA: Sage Publications.
Napolitano, M. 2013. 7 trends in sustainable design. Logistics Management, 52(1), 44–47.
Oelze, N., Hoejmose, S. U., Habisch, A., & Millington, A. 2016. Sustainable development in supply chain management: The role of organizational learning for policy implementation. Business Strategy and the Environment, 25: 241–260.
Othman, A. A. E., & Abdelwahab, N. M. A. 2018. Achieving sustainability through integrating
risk management into the architectural design process. Journal of Engineering, Design and Technology, 16(1), 25–43.

Peloza, J. 2009. The challenge of measuring financial impacts from investments in corporate social performance. Journal of Management, 35: 1518–1541.
Peloza, J. & Shang, J. 2010. How can corporate social responsibility activities create value for stakeholders? A systematic review. Journal of the Academy of Marketing Science, 39: 117–135.
Petticrew, M. & Roberts, H. 2006. Systematic reviews in the social sciences: A practical guide. Malden, MA: Blackwell Publishing.
Pfeffer, J. & Salancik, G. R. 2003. The external control of organizations: A resource dependence perspective. New York, NY: Stanford Business Books.
Petratos, P. & Damaskou, E., 2015. Management strategies for sustainability education,
planning, design, energy conservation in California higher education. International Journal of Sustainability in Higher Education, 16(4), pp.576–603.
Pies, I., Beckmann, M., & Hielscher, S. 2010. Value creation, management competencies, and global corporate citizenship: An ordonomic approach to business ethics in the age of globalization. Journal of Business Ethics, 94: 265–278.
Pittaway, L., Robertson, M., Munir, K., Denyer, D., & Neely, A. 2004. Networking and innovation: A systematic review of the evidence. International Journal of Management Reviews, 5-6(3-4): 137–168.
Porter, M. E. 1996. What is strategy? Harvard Business Review, 74(6), 61–78. Retrieved from https://hbr.org
Ræbild, U. & Hasling, K.M. 2019. Experiences of the sustainable design cards: Evaluation of applications, potentials and limitations. Fashion Practice, 11(3), pp.417–442.
Rahman, O. & Gong, M. 2016. Sustainable practices and transformable fashion design: Chinese professional and consumer perspectives. International Journal of Fashion Design, Technology and Education, 9(3), pp.233–247.
Riel, A. et al. 2015. An innovative approach to teaching sustainable design and management. Procedia CIRP, 36, pp.29–34.
Rivas, J. L. 2012. Co-opting the environment: An empirical test of resource-dependence theory. The International Journal of Human Resource Management, 23: 294–311.
Rocha, C.S., Antunes, P. & Partidário, P. 2019. Design for sustainability models: A multi-perspective review. Journal of Cleaner Production, 234, pp.1428–1445.
Romli, A. et al. 2016. Eco-design case-based reasoning tool: The integration of ecological quality function deployment and case-based reasoning methods for supporting sustainable product design. Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture, 232(10), pp.1778–1797.
Rousseau, D. M. 2012. Envisioning evidence-based management. In D. M. Rousseau (Ed.), The Oxford handbook of evidence-based management: 3–24. New York, NY: Oxford University Press.
Ruegemer, J., 2010. The introduction of sustainable strategies and technology to the US
housing building Industry: Design, construction and performance analysis of energy-efficient residential buildings – A Case Study. The International Journal of Technology, Knowledge, and Society, 6(2), pp.151–162.
Santolaya, J.L. et al. 2019. A practical methodology to project the design of more sustainable products in the production stage. Research in Engineering Design, 30(4), pp.539–558.
Sansa, M., Badreddine, A. & Ben Romdhane, T. 2019. A new approach for sustainable design scenarios selection: A case study in a Tunisian company. Journal of Cleaner Production, 232, pp.587–607.
Shrivastava, P. 1995. The role of corporations in achieving ecological sustainability. Academy of Management Review, 20: 936–960.
Sonego, M., Echeveste, M.E.S. & Debarba, H. G. 2018. The role of modularity in sustainable design: A systematic review. Journal of Cleaner Production, 176, pp.196–209.
Sonenshein, S., DeCelles, K. A., & Dutton, J. E. 2014. It's not easy being green: The role of self-evaluations in explaining support of environmental issues. Academy of Management Journal, 57(1): 7–37.
Song, Y. et al. 2014. Towards Net Zero Energy Building: Collaboration-based Sustainable Design and Practice of the Beijing Waterfowl Pavilion. Energy Procedia, 57, pp.1773–1782.
Swed, F., & Eisenhart, C. 1943. Tables for testing randomness of grouping in a sequence of alternatives. The Annals of Mathematical Statistics, 14(1), 66-87.
Thomas, J. & Harden, A. 2008. Methods for the thematic synthesis of qualitative research in systematic reviews. BMC Medical Research Methodology, 8(1): 45.
Tomovska, R. & Radivojević, A. 2017. Tracing sustainable design strategies in the example of the traditional Ohrid house. Journal of Cleaner Production, 147, pp.10–24.
Tumwesigye, K.S., Oliveira, J.C. & -Gallagher, M.J.S. 2016. Integrated sustainable process design framework for cassava biobased packaging materials: Critical review of current challenges, emerging trends and prospects. Trends in Food Science & Technology, 56, pp.103–114.
Turban, D. B. & Greening, D. W. 1997. Corporate social performance and organizational attractiveness to prospective employees. Academy of Management Journal, 40: 658–672.
Wang, N., Chang, Y.-C. & Nunn, C. 2010. Lifecycle assessment for sustainable design options of a commercial building in Shanghai. Building and Environment, 45(6), pp.1415–1421.
Williamson, O. E. 1981. The economics of organization: The transaction cost approach. American Journal of Sociology, 87: 548–577.
World Commission on Environment and Development (WCED). 1987. Report of the World Commission on Environment and Development: Our common future. Retrieved from http://www.un-documents.net/our-common-future.pdf
Zhou, C.-C., Yin, G.-F. & Hu, X.-B. 2009. Multi-objective optimization of material selection for sustainable products: Artificial neural networks and genetic algorithm approach. Materials & Design, 30(4), pp.1209–1215.
Wry, T., Cobb, J. A., & Aldrich, H. E. 2013. More than a metaphor: Assessing the historical legacy of resource dependence and its contemporary promise as a theory of environmental complexity. The Academy of Management Annals, 7: 441–488.

A MEETING OF MINDS: A CULTURALLY AND TECHNOLOGICALLY ENABLED APPROACH TO SUPPORTING SUSTAINABLE DEVELOPMENT IN EMERGING ECONOMIES

Jumanne Donahue, USA

Abstract

This paper explores a technological approach to encouraging entrepreneurship, human development, human capital cultivation, and collaboration in emerging economies. This examination begins by describing a general human tendency towards excess, a Runaway Effect, which generates sociocultural problems that manifest in entrepreneurship, human development-capital cultivation, and collaboration. Secondly, critical conceptions of entrepreneurship, human development-capital cultivation, and collaboration are defined. These inform the development of a culturally-aware, science of complexity-informed, sociotechnical system—Wheel-SaaS—for constraining the Runaway Effect in all areas. The Wheel-SaaS aims to help participants establish a Common Moral Position (CMP), or group rationality, across individuals, social groups, and goals. A CMP serves as a foundational social field for a marketplace where values, needs, wants, abilities, relationships, problems, and potential synergies can be identified, resolved, or arranged for mutual benefit. Finally, this paper assesses how the Wheel-SaaS might assist selected projects in the developing world.

Introduction

Circa 2007 I researched how simulations might to applied to real-world problems. In my search I came across a paper titled "Role-playing games for opening the black box of multi-agent systems: method and lessons of its application to Senegal River Valley irrigated systems" (Barreteau, Bousquet, and Attonaty). The authors devised a roleplaying game for validating and enriching their multi-agent simulation, SHADOC. SHADOC was designed to help Senegalese farmers better use limited water resources for irrigation (Barreteau, Bousquet, and Attonaty). I found this an excellent use of technology. Yet, many years later, I could not find the broad application of this approach. I assumed this was due to a lack of interest in helping agriculturalists in the developing world. Regardless, I see many such failures of imagination and interest—myopic, hyperbolic, and shortsighted worldviews and incentives driving technology away from prosocial and sustainable practices and towards reckless and inhumane designs.

In this paper, I will describe the toxic contours of the "Runaway Effect." Further, I will demonstrate how technology might be used to counter the Runaway Effect and shepherd sustainable development in the domains of entrepreneurship, collaboration, and human development. Such technology would reward consultations with other people and organize their ambitions and actions around an expansive definition of value, a common moral position, farsightedness, and iterative adaptation inspired by the science of complexity.

As one of my concerns is sustainability, it requires definition. For the purposes of this paper, sustainability is: "The rational management of existing resources so that said resources are not denied to future generations. Sustainability is economically viable, socially just, improves human development and human capital, and is environmentally sound." Now, for the nature of our underlying problem.

The Runaway Effect: Narrowness, Hyperbole, and Shortsightedness

I presume every human intuits that something is wrong with the world and humankind in general. Some describe it in terms of moral dissolution or decadence. Others speak of income inequality, sexism, racism, or political decay. Metaphysically, I will describe it as the "Runaway Effect," borrowed from social psychologist Charles Hampden-Turner's Maps of the Mind. Hampden-Turner's Runaway Effect is described cybernetically as "a mode of pathological feedback by which the system instead regulating itself as through a thermostat progressively destabilizes and disintegrates itself instead." (Hampden-Turner, 84). My interpretation of Runaway Effect can be described as an excessive attachment to a particular mental model and following its incentives regardless of external circumstances leading to escalating harm.

The Runaway Effect intersects with aspects of Immanuel Kant's "Problem of Radical Evil," Plato's "Allegory of the Cave," Jean Baudrillard's concept of Hyperreality, Nigerian philosopher Ada Agada's "Dialectic of Mood," psychologist Daniel Gilbert's description of prospect theory (speculations about possible futures), and political scientist Francis Fukuyama's concept of political decay. The Runaway Effect could be summarized by the following statements:

I. The future will be as I imagine it from the present (and progress is linear).
II. I always understand what is good and evil (and I am good).
III. The map is the territory (reality is exactly as I perceive it).
IV. The world and others are easily and readily understood.
V. More of what is comfortable or pleasurable is always better.

The Runaway Effect dangerously impairs our imaginations and stops us from achieving our stated goals or pursing more beneficial ones. In the domains of entrepreneurship, human capital cultivation, and collaboration the Runaway Effect presents us with less helpful models of entrepreneurship, failed or insufficient attempts at human capital cultivation, and weak collaboration ecosystems due to a range of biases or pervasive corruption.

In Disclosing New Worlds: Entrepreneurship, Democratic Action, and the Cultivation of Solidarity, philosophers Fernando Flores, Charles Spinosa, and Hubert L. Dreyfus asserted that existing models of entrepreneurship are overly mechanistic and ignore the deep and transformational impact that entrepreneurs can have on the way people think and behave. In that vein,

social entrepreneurship or social enterprise has become increasingly influential in the discourse on development. Efosa Ojomo of the Clayton Christensen Institute for Disruptive Innovation argues for market-creating innovations to combat poverty. These market-creating innovations are "…innovations that transform complicated products into products that are simple and affordable so that many more people in society can afford them." (Watson) Ojomo uses Henry Ford's affordable Model T automobile as an example (Watson).

Runaway thinking separates human capital cultivation from general human development. Pursuing an employee reskilling strategy while ignoring the actual lives of unique humans struggling with a host of problems will leave such a strategy falling short of intended impacts (Tomer). Further, producing humans who are highly skilled at supporting a widget supply chain, but without a system of modern virtue ethics that considers the broad impact of one's behaviors, creates many people possessed by Runaway incentives. People can become preoccupied with crude, status quo, short-term, and narrow-minded objectives and rarely ask broader questions about why they are doing what they are.

International business scholar Amy Chua's World on Fire details the negative influence of the Runaway Effect on collaboration—dysfunctional conflicts between "market-dominant" minorities and majority populations in various countries around the world. Chua describes the problem in her native Philippines as well as Mexico, West Africa, and many other parts of the world. Here, certain ethnic minorities have developed, for a host of historical reasons, great economic advantage and seek to maintain it—stoking resentment and the rise of explicitly racist or xenophobic politics by governments representing ethnic majorities (Chua). In most of these countries there are also high levels of corruption, which also frustrates helpful collaboration and competition. When high levels of corruption coexist with the ethnic concentration of wealth and power (and extreme political reactions to it), the ecosystems of collaboration, human capital development (meaning the simultaneous cultivation of human capital and human development), and entrepreneurship are severely disrupted. New, more inclusive, identities and creative problem-solvers are needed to resolve the difficulties created by excessive aspects of human nature and culture.

Regarding declining collaboration in society, some in the Middle East and North Africa have come to believe that wasta, a traditional form of social obligation, promotes corruption and inefficiency (Alterman). Ordinarily, people leverage their wasta networks to gain access to goods, services, or employment regardless of legality or merit (Alterman). In a Runaway co-morbidity, nations with high levels of corruption also show declines in life expectancy, generosity, and GDP per capita (Helliwell et al.). In such milieus, human development and education typically fail to reach the heights reached in more developed nations (Helliwell et al.).

Corruption has been characterized holistically as a "wicked problem"—a particular species of complex interaction between sociocultural, political, economic systems and individuals enmeshed in those systems (Holmes). Leslie Holmes in Corruption: A Very Short Introduction, details counter-corruption efforts as disincentives, incentives, administrative-technical efforts, and "other" approaches. The "other" category describes changing values or virtues. The sociotechnical system to be detailed in this paper draws upon uncovering individual and group goals and constructing incentives and disincentives to encourage value and behavior change in the interest of all stakeholders.

Entrepreneurship

Before proceeding further, definitions of entrepreneurship, collaboration, and human capital development are required. One relevant approach to entrepreneurship is called "entrepreneurial capital" and is described as giving a person the skills to cope effectively with financial constraints, cultivate opportunities, manage risk, and solve problems quickly and effectively (Amin). Entrepreneurial capital should be a component of a general model of entrepreneurship.

How does one develop entrepreneurial capacities? The master conception of entrepreneurship I have selected is something of an anti-model. Late philosopher Hubert L. Dreyfus was inspired by Martin Heidegger. Dreyfus, Fernando Flores, and Charles Spinosa wrote of an approach to entrepreneurship informed by a deep sensitivity to human existence. Their perspective on insufficient models of entrepreneurship: "Consequently, these writers try to produce models that capture the characteristics of entrepreneurs and the effects of the entrepreneurial process. They look at the entrepreneur as someone who reallocates—or even better coordinates—resources. They therefore focus on models that show how such reallocation or coordination can be optimized to provide the greatest social or corporate benefit. We argue that such a theoretical stance devalues and is sometimes injurious to the history-making skills of entrepreneurs." (Dreyfus, Flores, and Spinosa, 35)

Instead, Dreyfus, Flores, and Spinosa put forth their Heideggerian account of the entrepreneur's approach to life: (1) the entrepreneur begins a journey of innovation through exploration of some anomaly or tension in his or her life. (2) The entrepreneur keeps the anomaly in mind as he or she accomplishes tasks. (3) Once the entrepreneur has a deep understanding of where the anomaly resides across all the domains of his or her life, the new entrepreneurial understanding can be lived and marketed to others. (4) The entrepreneur shares his or her new understanding with others through workshops and discussions and (5) continues to embody the new understanding in a way that preserves its authority with the entrepreneur and others. Finally, (6) the entrepreneur coordinates all aspects of the entrepreneurial behavior into a coherent, communicable, and cultural way of life. With a definition of an entrepreneur as sensitive to experience, adaptive, and an able problem-solver, we move on to the topic of collaboration.

Collaboration

The ability to cooperate with others easily and fruitfully is vital to a vibrant business environment as well as a broadly flourishing society. In low-trust societies where corruption is generally higher, cooperation requires higher transaction costs—these include investments in police, detailed contracts, and litigation (Fukuyama). In contrast, when virtues like openness, reliability, and honesty are frequently practiced, trust is also high (Fukuyama). Further, when there are high levels of social trust, transaction costs can be conserved (Fukuyama). Finally, when trust is increased, one's social capital should also be greater, where social capital is defined as "the features of social relationships that contribute to the capacity of economic entities, and, thereby, enable them to accomplish their purposes" (Tomer, 6). Thus, in order to challenge and counter runaway distrust and its downstream negative impacts, one must encourage social virtues that lead to improved trust, more social capital, and beneficial collaboration and competition in the context of this more enlightened social and moral equilibrium.

However, we must establish an elemental, interpersonal, currency for developing collaborations and competitions for constraining Runaway impacts. This currency is dialogue. Dreyfus, Flores, and Spinosa write of concerns, or values. Solidarity or shared identity is defined as a collection of shared concerns such a freedom of speech or the avoidance of cruelty (Dreyfus, Flores, and Spinosa). The ordering of these concerns, the authors say, is the realm of politics (Dreyfus, Flores, and Spinosa). I connect solidarity, a collection of common concerns, to Fainos Mangena's description of a Common Moral Position (CMP) or group rationality. In the article "African Ethics through Ubuntu: A Postmodern Exposition," Mangena writes of the CMP: "To begin with, the moral imperative of hunhu/ubuntu ethics recognizes and values the importance of dialogue in the conceptualization and organization of Shona society, and that the community is at the centre of all moral deliberations which, of course, are premised on the idea of communal or group rationality also known as the Common Moral Position (CMP)."

Thus, enhancing collaboration and social capital requires promoting virtues that generate collections of concerns common to a group of people and a robust system for negotiating the ordering of concerns across individuals that produces more trust, social capital, and a higher cultural equilibrium of cooperation (and fruitful competition). Sharing Economy theorist Rachel Botsman proposes a trustworthiness construct comprised of Competence, Reliability, Empathy (or benevolence), and Integrity. These are virtues compatible with broad human development, collaboration, and entrepreneurship.

Human Capital and Human Development

The online edition of the Encyclopedia Britannica defines human capital as: "…intangible collective resources possessed by individuals and groups within a given population. These resources include all the knowledge, talents, skills, abilities, experience, intelligence, training, judgment, and wisdom possessed individually and collectively, the cumulative total of which represents a form of wealth available to nations and organizations to accomplish their goals."

While this definition is adequate for the layperson, continued characterization is required for this paper's purposes. Humans exist along moral, social, political, and economic dimensions. We have overlapping and problematic identities, associations, and complex relationships with ourselves, others, and institutions. Moral philosophers sometimes proclaim human development as vital to human flourishing and this paper is sympathetic with such a call for eudaimonia.

Economist John Tomer has developed a model for investing both in a person's broad development and business-oriented human capital. Tomer asserts his development approach advances a person to their next stage of development, similar to Abraham Maslow's Hierarchy of Needs. Of investment in people, he says:

"Healthy progress occurs along these pathways when an intervention (1) enables or facilitates a person's development or (2) prevents events that might have stopped or retarded that individual's development. If the outcome of a person's development along one pathway is favorable, it may enable a favorable developmental result along one or two other developmental pathways." (Tomer, 34)

Educational and Cognitive Development (Tomer, 21)	Psychological and Biological Development (Tomer, 22)	Brain Development (Tomer, 22)
Level 4: Acquiring Overall Life Direction, Interests, Outlooks, and Motivation Level 3: Developing Skills & Talents: Physical, Academic, Arts, Technology Level 2: Learning/Appreciating Many Types of Knowledge Acquiring Academic Discipline Level 1: Learning the Basics: Reading, Writing, Arithmetic	Level 6: Connecting to One's Highest Values, Spirituality, Creativity, Aesthetics Level 5: Finding Oneself: Friends, Lovers, Loving Family Relationships Level 4: Finding Oneself: Competencies, Motivations, Values, Emotional Intelligence Level 3: Becoming, Safe, Secure, Satisfying Physical Needs Level 2: Early Learning, Relating, Doing Level 1: Foundational Neurodevelopment	Level 4: Developing Creativity and Peak Performance Brain Functioning Level 3: Overcoming Brain Development Deficiencies, Problems Level 2: Neurodevelopment Associated with Doing, Achieving Relating Learning Level 1: Foundational Neurodevelopment

Table 1: Tomer's Tiers of Development

Tomer delineates three, tiered, aspects of development: Educational and Cognitive Development, Psychological and Biological Development, and Brain Development. The tiers of each are described in Table 1.

Thus, this paper advocates cultivating a person's entrepreneurial capacity alongside all fundamental capacities of a human being—human capital development. This benefits a human's growth overall as well as the ability to be an entrepreneur, collaborate, or compete with others in commercial and civil society contexts.

Countering the Runaway Effect with a Systems Approach and Common Moral Position

The excesses of the Runaway Effect—the oversimplification of reality, literalism, and rapaciousness—produces all manner of ills. In entrepreneurship, we find overly rigid models of this activity. Collaboration and human development are stymied by simplistic interventions ignorant of hidden and unhelpful incentives, distrust, and corruption.

As mentioned earlier, Leslie Holmes defines counter-corruption efforts as disincentives, incentives, administrative-technical efforts, and "other" approaches. The "other" category describes changing values or virtues. The sociotechnical system to be detailed in this paper aims to uncover individual and group goals and construct incentives and disincentives to encourage values and behavior change in the interest of all the stakeholders. This requires some comprehension of complexity.

The Santa Fe Institute studies complex systems, asserting that complexity is a feature of many phenomena we interact with daily. Indeed, some of these phenomena are inside humans. Complexity is not only a feature of cells, but national economies and the growth of megacities. My readings on complex adaptive systems have identified four, fundamental, attributes:

(1) Hierarchical – Composed of components arranged in a hierarchy in some state at a point in time (Holland).

(2) Interactive – The components interact with each other and the larger environment at every level and across levels (Holland).

(3) Adaptive – The components learn and pursue strategies at every level (Holland).

(4) Emergence – Under certain circumstances a system can exhibit completely new behaviors or attributes (Shalizi).

When one speaks of the emergence of new behaviors in a social system, these can include higher levels of trust and cooperation, but also corruption (Shalizi). What can we do to maintain beneficial practices and conditions, diminish dysfunction, while encouraging emergent states of development?

One should apply a complex, adaptive, culturally aware, technological system. David Krakauer of the Santa Fe Institute has called for a new approach to engineering that embraces complexity theory—Emergent Engineering (Krakauer). The goals of Emergent Engineering are:

(1) Seek to modify the reward or selective context in which semi-autonomous agents operate and design towards better incentives (Krakauer).

(2) Accept significant component error rates and focus on mechanisms that can average and aggregate these effects to acceptable levels in the collective output (Krakauer).

(3) Design with an eye towards distributions of outcomes and not towards deltas (single optimal outcomes), pursuing average properties throughout (Krakauer).

(4) Develop mechanisms for controlling nonlinear dynamics and predicting and influencing critical transitions (Krakauer).

(5) Harness adaptation to allow for continued exploration and exploitation rather than coercing systems into single states that require endless iterations of costly novel production (Krakauer).

These tenets can be adapted to simultaneously help diverse and disagreeing humans to develop a common moral position and marshal their resources to solve problems of collective interest in a sustainable fashion, envision and pursue superordinate goals impossible for each person or participating group to achieve on its own, and to oppose the Runaway Effect. The longevity of a society requires controlling the destructive nonlinear dynamics of human behavior and harnessing collective action for adaptation and continued exploration of reality.

Emergent Engineering can be applied to the design of a socio-technological system for assisting humans in becoming better critical thinkers, more trustworthy, more skilled generally, greater entrepreneurs, collaborators, and competitors in a sustainable context. Emergent Engineering principles (1) tell us to be aware of the impact of incentives and design better ones given our goals and (2) better cope with failure, constraining it so that it cannot destroy the entire system. Emergent Engineering (3) advises us to seek a range of outcomes instead of a single, ideal, solution, (4) warns us to develop approaches for managing extreme effects and managing system transitions, and (5) urges us to capture innovation in the system for furthering the system.

We are approaching a solution system that meets the interactivity and adaptability requirements of a Complex Adaptive System (CAS) as specified by Holland. To give the scheme a hierarchical structure, we need a governance mechanism, a paradigm that the participants can use to deliberate and make decisions together. Implementers are at liberty to use any number of governance methodologies, but Holacracy is a current decentralized governance methodology consistent with a democratic and collaborative ethos.

A metaphor will be applied to this structure. We are told that societies use metaphorical conceptions (ex. “The body politic”) to build cooperation across individuals (Ortman). This system’s metaphor is a wheel with six spokes and a hub. Each spoke represents an interpersonal stage or phase where participants move towards a common moral position and attendant virtues and norms allowing them to accomplish goals of collective interest. The hub contains three additional, personal development, phases. Every turn of the wheel brings adaptive change to the people and the wheel as a whole—every revolution carries evolution towards a CMP and given the scope of this paper, optimal levels of entrepreneurship, human capital development, collaboration and competition for common benefit.

Thus, participants in the Wheel social system “roll” through nine phases:

I. Statements of Identity: The members become aware of their own identities and each other’s dominant identities, interests, and goals.

II. Reconciliation of Identities: Members of the group work towards accepting minimal, mutually agreeable, versions of each other’s identities—to see each other as humans—despite their diverse cultural orientations and personal preferences. Those members who do not accept the identities of other members should depart until such time as they can. The reconciliation of identities establishes the psychosocial foundation for a common moral position.

III. Statements of Grievances: Members of the group state their grievances, challenges, or difficulties with each other and the wider world.

IV. Envisioning: Members of the group imagine the world they each wish to inhabit. Their varying visions of the world are integrated via negotiation into a unified one that also solves any grievances raised. Those dissatisfied with group’s vision should depart until such time as they can accept it. After this, members list the tasks needed to realize the articulated vision. This activity facilitates the building of communitarian relationships and by the end of this stage users should have generated a common moral position—a synthesis of their goals, priorities, and perspectives as well as the virtues needed to accomplish their aims. The explicit incentive and disincentive structure accompanying the common moral position is programmatically rendered in the sociotechnical system supporting the Wheel.

V. Negotiation: Members negotiate the formation of task-specific subgroups and assign members to realize aspects of the common vision. The implementers apply a governance mechanism most explicitly in this phase. Soft hierarchies and duties are established, and milestones agreed upon. This stage also includes socializing for mutual benefit—market behavior where favors are exchanged for mutual gain.

VI. Persistence of Vision: Members set the agenda and date for a subsequent gathering. At that time, members will decide to begin with phases I, II, or III to adapt to any new members. Repeating these phases may be necessary to consider and respond to major life changes or new problems that require reconciliation. Phases I through VI are heavily reliant on conversation and ideally should take place in a face-to-face assembly with virtual gatherings as an alternative or supplement. Phases VII through IX focus on individual cultivation and should be conducted away from coordination meetings.

VII. Personal Exploration: Members explore their separate experiences for anomalies, inconsistencies, contradictions, or problems.

VIII. Personal Skilling: Members individually pursue education, learning, and possibly share advice with others for addressing anomalies, problems, or aspirations.

IX. Personal Consolidation: Members focus on a particular anomaly for development.

Now to the adapted principles from Emergent Engineering: (1) incentive design, (2) constraining the negative impact of failure, (3) pursuing diverse outcomes, (4) managing extreme, non-linear, effects and system transitions, and (5) capturing innovation in the system.

I would argue that all five Emergent Engineering principles are deeply embedded throughout the Wheel, but this is an attempt to provide a more specific attribution. In the phases of the Wheel metaphor, I. Statements of Identity is designed to capture the goals of participants to pursue diverse outcomes (3) and manage (4). II. Reconciliation of Identities is designed to support (2), (3), and (4). The phase called III. Statements of Grievances is designed to address (1) and (2). IV. Envisioning supports (1), (2), (3), (4), and (5) through a CMP, which mobilizes incentives and disincentives against the Runaway Effect. Phases V. Negotiation and VI. Persistence of Vision support (4) and (5) while VII. Personal Exploration through IX. Personal Consolidation bolster (3), diverse outcomes.

The Wheel seeks to counter the Runaway Effect by encouraging virtues that enhance critical thinking (rigor in thinking seeking to improve the quality of thought) and farsighted decision-making. Entrepreneurship, collaboration, and human capital are realms for improved thought and action. The Wheel also means to constrain excessive, narrow-minded, and destructive thinking generally and in these domains especially.

The attitudes emerging from the Wheel should expand participants' trustworthiness, enable them to better understand themselves and others, think together more effectively, and compete in ways that support an ever-evolving common moral position promoting sustainable entrepreneurship, collaboration, and human development.

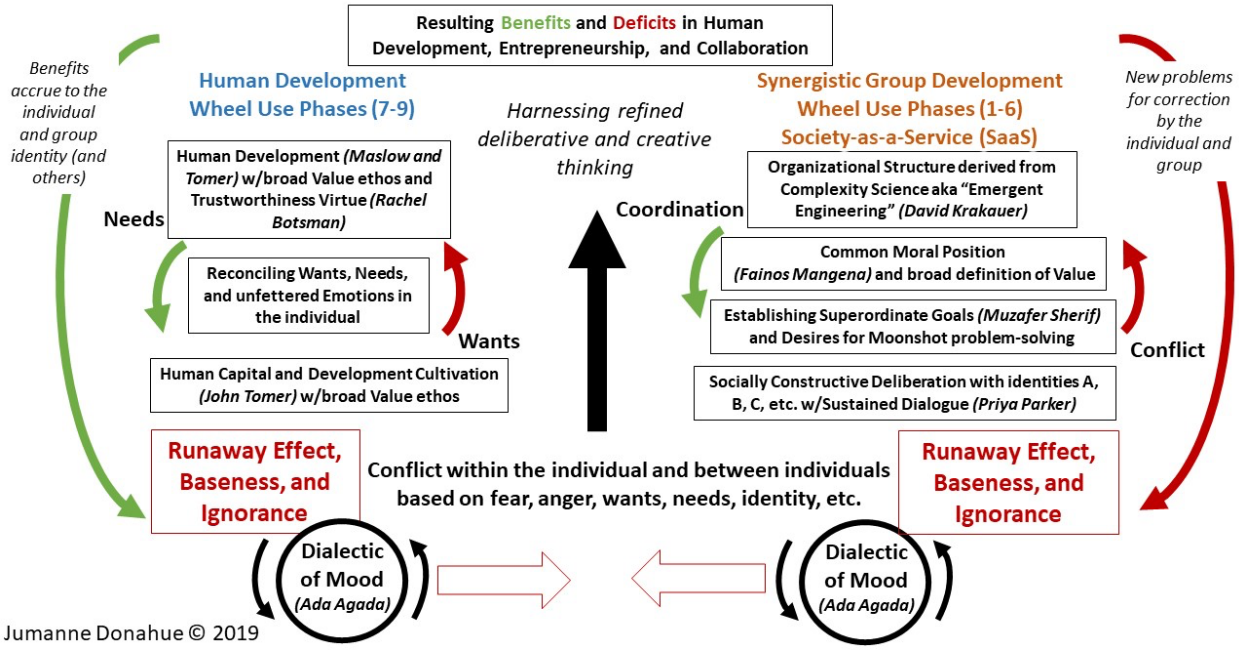


Figure 1: Two Pillars of Social Problem Solving

Finally, I created a graphic illustrating the Runaway Effect, human development topics, the Wheel social process, and the Society-as-a-Service technological solution (described later) into a psychosocial model called the Two Pillars of Social Problem Solving. At the very bottom of the diagram is the raw existential churning of human nature as represented by the "Dialectic of Mood." This desire to feel joy and avoid despair produces many offspring—the Runaway Effect among them.

One pillar (left in Figure 1) represents development consistent with the humanistic psychology of Abraham Maslow, while the second pillar (right in Figure 1) represents synergistic group development. Both pillars migrate human psychology away from the Runaway Effect and towards higher levels of refinement in an endless cyclical process of problem-solving and adaptation. In the same diagram, the relevant social Wheel phases are noted in blue at the top of the Human Development pillar. Similarly, at the top of the Group Development pillar, Wheel phases are annotated in orange along with the Society-as-a-Service technical system's amplification of that process.

Defining Value

The next section provides a description of Society-as-a-Service. It is vital, however, to emphasize the importance of value before the role of technology is discussed. An expansive conception of value is required to both deliver any benefits to widest audience and constrain negative impacts as much as possible. A broad definition of value works to limit the excesses of the Runaway Effect while also encouraging a vigorous and imaginative exploration of problem and solution spaces.

A far-reaching conception of value, one that accounts for many different cultures, interests, and concerns, also jibes with this paper's definition of sustainability: "The rational management of existing resources so that said resources are not denied to future generations. Sustainability is economically viable, socially just, improves human development and human capital, and is environmentally sound." This approach to value does not promote amorality or "anything goes" in the pursuit of profit, dominance, or the maintenance of advantage. Instead, it seeks a balance of the most important wants, needs, and concerns of stakeholders in a farsighted manner while enabling problem-solving among the stakeholders to increase individual and collective human flourishing.

Society-as-a-Service

Models of entrepreneurship, human development, collaboration, and complexity have been discussed along with a Wheel metaphor for fostering group rationality (common moral position) and problem-solving across ethnicity, class, gender, and other cultural fault-lines. The Wheel metaphor will now be paired with an information communications technology component with the rather ambitious title, the Society-as-a-Service suite (SaaS). The complete sociotechnical system is dubbed "Wheel-SaaS." SaaS has the following aims:

- Wheel Support: SaaS should capture user goals revealed during the Wheel process and programmatically devise incentives and disincentives consistent with their common moral position that increase the likelihood users will accomplish their collective and individual goals in a sustainable fashion.
- Facilitating General Human Development: This aim spans physical health, well-being, critical thinking, intercultural competence, problem-solving, and an ethos that balances the interests of many.
- Cultivation of Human Capital: SaaS should provide members access to lifelong education relevant to both the individual and greater society.
- Human-Centric Design: Allow users to personalize access to education and other services based on their desires, concerns, and circumstances. Implement a privacy policy that allows members to specify how their data is used and the ability to have it deleted at their request.
- Apply gamification judiciously to facilitate refined competition, collaboration, and engagement.
- Provide equal access to services regardless of gender, ethnicity, or social class.
- Coordinate the interests, skills, and activities of members to exceed minimum sustainability standards and increase the overall human development and human capital value of the network.
- Strategic Envisioning Services for Planning and Evaluation: Provide system thinking maps and quantifications of phenomena to users, increasing their awareness of their milieu, their impact on it, as well as unforeseen problems caused by their plans or current activities.
- Orient the activities of organizations and small businesses towards sustainable, complementary, support and the pursuit of superordinate goals.
- Value Mapping: Provide a quantification of value that drives the establishment of large networks of equity and the use of resources that balance risk and reward.
- Innovation Exploration, Capture, and Amplification: Facilitate the exploration and pursuit of local solutions to problems conceived of at the bottom of the pyramid—and spreading successful innovations to the larger network of members and partners when appropriate.
- Link SaaS users to time-banking currency servicers (ex. SEVA Exchange) to encourage collaboration and competition.

SaaS contains four components:

- Meaning-as-a-Service: A subsystem which creates a quantifiable identity concept for every user. It uses survey questions, or another means, to place every user along a sociocultural identity spectrum where the preferences and interests of every individual are cataloged. A sophisticated implementation could have an AI voice assistant conduct a deep interview with the user where user responses are assessed for cultural orientations and other relevant identity markers.
- Value-as-a-Service: A subsystem which uses the social field created by Meaning-as-a-Service to generate a unitary notion of what all users value. This new social field measures the breadth of their collective values and prioritization of their concerns.
- Sociality-as-a-Service: A subsystem which defines the cultural and milieu-specific goods and services to be delivered to a population based on their individual and collective priorities as captured in Meaning-as-a-Service and unified in Value-as-a-Service. Here users can deliver feedback regarding provided goods and services. This service also contains a schema of rewards/incentives for cooperation and competition based on the social fields generated by Meaning-as-a-Service and Value-as-a-Service. The output of Sociality-as-a-Service is rendered into a goal-oriented Application domain—entrepreneurship, conflict resolution, peacebuilding, teambuilding, etc.
    - Sustainability Layer: A supplementary component to Sociality-as-a-Service that roughly balances cooperation, competition, and other activities in an Application domain to constrain destructive Runaway effects.

At this point the custom application of SaaS emerges. Into this unique mold are poured the goals, cultural orientations, and contributions of its users to produce an instantiation of SaaS (ex. "The Detroit Socioeconomic Development Group").

Challenges to Human Capital Development in Emerging Economies

Before describing several use cases for Wheel-SaaS, it is important to illuminate some obstacles to human development and human capital cultivation in many developing nations. Subject matter expert consultation with Dr. Habte Woldu produced the following issues regarding social innovation efforts in East Africa:

- Much of the population resides in rural areas and is engaged in agriculture.
- Farmers are socially disconnected from the urban population.
- Electricity is unreliable.
- Wifi is unreliable.
- Basic health deficits drain people of mental and physical strength.

Significant investments in energy, telecommunications, and transportation infrastructure are obviously needed in many emerging economies. The Wheel-SaaS approach might coordinate bottom-up energy production (ex. residential solar) with top-down endeavors (wind farms, geothermal, nuclear, etc.). A fusion of the town hall meeting, deliberative polling, and a sociotechnical system (Wheel-SaaS) could capture and reconcile divergent interests within and between communities. Interests might reach beyond energy use to encompass general patterns of life, cultural biases, and social problems impeding the equitable distributions of energy goods. When government and business participate in a Wheel-SaaS process, other disharmonies between institutions and citizens, conflicts of interests, or perverse incentives may be identified and repaired. Finally, in the absence of large-scale infrastructure investment, the Wheel-SaaS system could be used to prioritize entrepreneurial ventures focusing on energy, health, and agriculture.

Wheel-SaaS Applications for Human Development, Entrepreneurship, and Collaboration

This section will explore potential uses for Wheel-SaaS. The article "How to Tease Out the Complex Dynamics of Systems Change" describes four perspectives on systems thinking—Hard, Soft/Critical, Designed, and Organic (Seelos). Think of these as cardinal directions. Organic means capturing bottom-up, local solutions while the Soft/Critical approach is an exploration, examining many perspectives instead of a rigid, literal, notion of systems thinking (Seelos). The Designed systems lens represents a deliberate, institutional, structure (Seelos).

The hypothetical applications of Wheel-SaaS will be confined to the Organic Soft/Critical and the Designed Soft/Critical quadrants given these suit the bottom-up, deliberative, experimental nature of Wheel-SaaS. The use cases involve Educate! Uganda (teaching entrepreneurial skills to children), Sekem (a deliberative social enterprise designed to inspire human and sustainable development), and the Harambe Entrepreneurship Alliance (assisting African entrepreneurs in developing market-creating businesses) (Higgins). I call Educate! Uganda and Harambe Entrepreneurship Alliance Organic Soft/Critical while Sekem is classified as Designed Soft/Critical by Seelos.

The following use cases summarize how key aspects of the Wheel-SaaS system may amplify the goals of these organizations. This hypothetical assistance means to enhance human capital development (increasing both human capital and human development), entrepreneurship, collaboration, and competition that is sustainable—one that counters the Runaway Effect, preserves the environment for future generations, and is socially just.

Educate! Uganda

- Wheel
  - Goal: The Wheel process harnesses the collective creativity and skills of Educate! Uganda students to support their general education and specifically as social entrepreneurs. Wheel-SaaS augments the students' current educational curriculum while granting them access to resources that broaden their human development and aid their entrepreneurial endeavors regardless of personality, gender, ethnicity, and religion.
- SaaS
  - Human-Capital Development: Sociality-as-a-Service delivers supplemental educational materials and services to students, filling gaps in their curricula and compensating for environmental challenges—living in a refugee camp and intermittent access to electricity and the internet.
  - Entrepreneurship: Sociality-as-a-Service identifies and amplifies innovations of importance to Educate! Uganda students as well as Ugandan refugee and IDP populations.
    - Sociality-as-a-Service rewards and prioritizes innovation, goods, and services typically vital in emerging economies—energy production, waste recycling, healthcare, technological infrastructure, and agriculture.
  - Collaboration: Sociality-as-a-Service rewards entrepreneurs within and beyond the Educate! Uganda ecosystem for working together in complementary formations (synergy) that support students in accomplishing their goals while helping others achieve the same end.
  - Sustainability: The Sustainability Layer balances local Educate! Uganda activities with those of regional actors focusing on energy production, healthcare, technological infrastructure, and waste recycling. The Layer also ensures that no gender, ethnicity, class, or religion is unduly favored over others.

Sekem Initiative

- Wheel
  - Goal: The Wheel harnesses the ideas and activities of Sekem members for their collective benefit and in pursuit of their individual goals. Sekem's goals are individual human development through education and healthcare, generating new models of community development, supporting dignity and meaning in the workplace, sustainable agriculture, creating new innovations in sustainable development through research, producing economically viable and circular business models, and advocating for global holistic development

(Abouleish, et al.). Wheel-SaaS assists Sekem in accomplishing these tasks across personality, age, gender, class, political orientation, ethnicity, and religion.

- SaaS
  - Human-Capital Development: Sociality-as-a-Service provides Sekem members with a store of suitable educational materials and services across age, class, ethnicity, gender, and religion. This enhances Sekem's curriculum and compensates for difficulties facing them in their Egyptian milieu. Members use SaaS to specify the challenges, decide how to apply existing services to them, petition for new services, and request providers modify existing services to better suit their needs.
    - Sociality-as-a-Service rewards and prioritizes innovation focusing on sustainable agriculture, education, renewable energy production, sustainable entrepreneurship, and technological infrastructure relevant to the Sekem project.
  - Entrepreneurship: Sociality-as-a-Service supports Sekem entrepreneurs by identifying and amplifying circular economic (waste-free), agricultural, social, or technological innovations of relevance to all Sekem business endeavors across time and geography.
  - Collaboration: Sociality-as-a-Service rewards Sekem stakeholders for working together in complementary ways that help those within and beyond the Sekem ecosystem to accomplish sustainable projects that advance the goals of all involved.
  - Sustainability: The Sustainability Layer is calibrated to balance local Sekem community interests with global priorities and activities centering on sustainable agriculture, education, healthcare, renewable energy production, sustainable entrepreneurship, and technological infrastructure while ensuring that no gender, ethnicity, class, political orientation, or religion is unduly favored over others.

Harambe Entrepreneurship Alliance

- Wheel
  - Goal: The Wheel process gathers Harambe Entrepreneur Alliance members ("Harambeans") and engages them in producing the most fruitful endeavors. This involves identifying promising new social entrepreneurs and ventures and amplifying these. These people and ventures must, however, align with the Harambe ethos of working together to unleash the potential of Africans through businesses that will raise the continent's people from poverty (Higgins). Wheel-SaaS supports the Harambean mission across personality, geographical location, age, gender, ethnicity, and innovation type.
- SaaS
  - Human-Capital Development: Sociality-as-a-Service delivers entrepreneurial educational materials to Harambeans appropriate to the challenges facing them in milieus across Africa.
  - Entrepreneurship: Sociality-as-a-Service provides Harambeans with a resource of entrepreneurial contacts and potential collaborators with skills relevant to their mission and sympathetic to their ethos.
    - Sociality-as-a-Service identifies and provides sustained amplification to innovations specified as important to Harambean Entrepreneurs (ex. sustainable agriculture, healthcare, entrepreneurship, and renewable energy) across time, ethnicity, gender, religion, nationality, and culture.
  - Collaboration: Sociality-as-a-Service rewards Harambeans for working together in complementary ways that assist those within and beyond the Harambean ecosystem in accomplishing sustainable projects.
  - Sustainability: The Sustainability Layer is calibrated to balance the innovation interests of Harambeans with the demands of the Harambe Entrepreneurship Alliance's vision ensuring that no gender, ethnicity, geographical location, or type of innovation is unduly favored over others.

Conclusions and Future Work

This paper calls attention to a general, human, runaway, tendency to be inhumanly excessive—narrow-mindedness and shortsightedness in particular—which hinders interventions intended to encourage entrepreneurship, human capital cultivation, and collaboration in emerging economies. The Wheel-SaaS sociotechnical system is proposed as a countermeasure and is potentially a means of assisting people at the bottom of the pyramid in accessing goods, services, and establishing synergistic and sustainable relationships that increase their competency. Challenges to human development in emerging countries are detailed along with several Wheel-SaaS use cases. Future work involves collaborating with others to build a SaaS prototype to conduct testing and experimentation to demonstrate its level of efficacy in empowering networks of networks of people to solve problems via forging a common ethos and destiny.

References

Abouleish, Helmy, et al. SEKEM Vision and Mission 2057 (Version: 15.06.18), 2017. SEKEM, <https://www.sekem.com/wp-content/uploads/2018/10/SEKEM-Vision-2057_20180615-3.pdf>.

Alterman, Jon B. Ties That Bind: Family, Tribe, Nation, and the Rise of Arab Individualism. 2019, Center for Strategic and International Studies, www.csis.org/analysis/ties-bind-family-tribe-nation-and-rise-arab individualism.

Amin, Saqib. "Does the Entrepreneurial Human Capital is Important for Organizational Performance?" Business and Economics Journal 9: 350 (2018). DOI: 10.4172/2151-6219.1000350

Barreteau, Olivier, François Bousquet, and Jean-Marie Attonaty. "Role-playing Games for Opening the Black Box of Multi-agent Systems: Method and Lessons of Its Application to Senegal River Valley Irrigated Systems." Journal of Artificial Societies and Social Simulation 4.2 (2001). <http://jasss.soc.surrey.ac.uk/4/2/5.html>.

Botsman, Rachel. “Being More Trustworthy: The Basics.” Medium., 2019, <https://medium.com/@rachelbotsman/being-more-trustworthy-the-basics-6354e504917f>.
Chua, Amy. World on Fire: How Exporting Free Market Democracy Breeds Ethnic Hatred and Global Instability. New York: Anchor Books, 2003.
Dreyfus, Hubert L., Flores, Fernando, and Charles Spinosa. Disclosing New Worlds: Entrepreneurship, Democratic Action, and the Cultivation of Solidarity. Cambridge, MA: MIT Press, 1997.
Educate! “Educate! Uganda: Preparing Youth in Africa with the Skills to Succeed in Today's Economy.” Educate! Preparing Youth in Africa with the Skills to Succeed in Today's Economy., 2019, <www.experienceeducate.org/uganda>.
Fukuyama, Francis. Political Order and Political Decay. New York, USA: Farrar, Straus and Giroux, 2015.
Hampden-Turner, Charles. Maps of the Mind. New York, NY: MacMillan Publishing, 1981.
Higgins, Abigail. “Can the Harambe Entrepreneur Alliance Eradicate Poverty in Africa?” Stanford Social Innovation Review, Winter 2020. Web. 29 December 2019. <https://ssir.org/articles/entry/can_the_harambe_entrepreneur_alliance_eradicate_poverty_in_africa>.
Helliwell, John, et al. World Happiness Report 2019. United Nations, 2019.
Holland, John H. “Complex Adaptive Systems: A Primer:” in Worlds Hidden in Plain Sight: The Evolving Idea of Complexity at the Santa Fe Institute 1984-2019. Santa Fe, NM: Santa Fe Institute Press, 2019.
Holmes, Leslie. Corruption: A Very Short Introduction. Oxford, UK: Oxford University Press, 2015.
Krakauer, David C. “Emergent Engineering: Reframing the Grand Challenge for the 21st Century” in Worlds Hidden in Plain Sight: The Evolving Idea of Complexity at the Santa Fe Institute 1984-2019. Santa Fe, NM: Santa Fe Institute Press, 2019.
Mangena, Fainos. “African Ethics through Ubuntu: A Postmodern Exposition.” Africology: The Journal of Pan African Studies vol.9, no.2, April 2016.
Ortman, Scott G. “Imagining Complex Societies” in Worlds Hidden in Plain Sight: The Evolving Idea of Complexity at the Santa Fe Institute 1984-2019. Santa Fe, NM: Santa Fe Institute Press, 2019.
Seelos, Christian. “How to Tease Out the Complex Dynamics of Systems Change.” Stanford Social Innovation Review Winter 2020. Web. 28 December 2019. <https://ssir.org/articles/entry/how_to_tease_out_the_complex_dynamics_of_systems_change>.
Shalizi, Cosma. “What Can Emergence Tell Us About Today's Eastern Europe?” in Worlds Hidden in Plain Sight: The Evolving Idea of Complexity at the Santa Fe Institute 1984-2019. Santa Fe, NM: Santa Fe Institute Press, 2019.
Watson, Amedeo. “Efosa Ojomo on Harnessing Disruptive Innovation for International Prosperity.” Impact Boom Social Impact Blog & Podcast., 2019, <https://www.impactboom.org/blog/2019/2/7/efosa-ojomo-on-harnessing-disruptive-innovation-for-international-prosperity>

THE MACROECONOMIC FACTORS INFLUENCING UNEMPLOYMENT RATE IN EAST AFRICAN COMMUNITY

Award Said Jabran, Rwanda

Abstract

Exchange rate volatility affects both the volume and value of trade (Ali, Johari and Alias, 2014) and the domestic economy as a whole through sectors or firms involved in international trade. These are import and export sectors that employ populations in the nations. Hence, variability in value of currencies of the east African countries with respect to other currencies in the world (exchange rate) must affect employments of these countries. Out of the six East African countries, IMF (2014) annual report on exchange rate arrangements reveals that Kenya, Tanzania and Uganda adopt a floating exchange rate system. However, these three countries are the founders of the EAC with a long history of microeconomic ties in policy sharing and desires. Because of that this study investigates how the microeconomic variables affects unemployment rates in the east African economies with a case focus on Kenya, Tanzania and Uganda.

Keywords: macroeconomics, unemployment rate, exchange rate, per capita GDP, Investment, external debts, net export, interest rate.

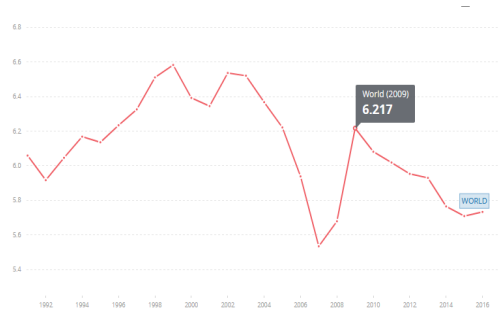
Introduction

The main objective of this research is to investigate the impact of macroeconomic variables on unemployment rates of the East African countries. Specifically, the research will; To assess the kinds of relationships that exist between per capital GDP, net export, interest rate, foreign direct investment, external debts, exchange rate variability and unemployment rate in the EAC countries Compare the magnitude of the impact of per capital GDP, net export, interest rate, foreign direct investment, external debts and exchange rate variability on unemployment rate between EAC Countries.

Background Information. Unemployment is one of the most discussed macroeconomic issues in the world. Mpofu (2013) mentions that one of the main concerns of policy makers in developing countries is high unemployment. This is because unemployment results to other socio-economic problems (Shaari et al., 2013). Unemployment leads to health (especially psychological) problems; dependency, crime and depreciation of human capital due to unpracticed skills (Malakwane, 2010).

Even though the problem spells globally, it is more serious in developing countries than developed countries (Dogrul and Soytas 2010 in Shaari, 2013). This might be because population growth in developing countries is higher than in developed countries. Bakhshi and Ebrahimi (2016) confirm that the problem is more tangible in developing countries following a larger size of the younger population. The figure below shows the trend of unemployment worldwide. After 2005, the rate of unemployment reached the maximum of 6.217 which was related to the global economic crisis of 2008. It then began to fall gently and started to increase again after 2015.

Fig 1.1: The World Unemployment Trend



Source: World Bank Data Bank (2016)

In company with the scope and nature of unemployment, the crucial question is what determines unemployment? Unemployment has been escalating due to a number of factors such as population growth, technological advancement and government policy (Bakhshi and Ebrahimi, 2016). Ebrahimi (2016) and Mpofu (2013) both point out the role of trade unions and exchange rate variability as other determinants of unemployment. Andersen and Sorensen (1988) in Nyahokwe (2013) stated that trade unions crush the labor market through their pressure for large hikes. There are other many determinants of unemployment.

Many unemployment studies focus on domestic factors of individual country labor market such as gross domestic product, inflation, wages and population (Maqbool et al, 2013, and Ashipala, 2010). There are external factors being covered such as

foreign direct investment in Maqbool et al (2013). Adeninyi (2012) observed that, the analysis of exchange rates has received a negligible attention in employment studies in developing countries, particularly Africa.

The importance of international trade to development of national domestic economies is increasing. UNCTAD (2015) found that when the opportunities of international trade are harnessed well; they can be of vital help in the creation of jobs. The exchange rate plays a crucial role to determine how international trade and investment affects to national economies.

The East African community is one of the developing economic regions which lack literature about the effect of exchange rate variability on unemployment. There are studies at regional levels but only in developed and emerging economies (Gur, 2015, Asif, 2013 and Belke and Setzer, 2006). In the developing countries, studies focus on individual countries (Mpofu, 2015, and Nyahokwe, 2013). To the best of the author's knowledge, there is no regional study of exchange rate volatility on unemployment in Africa.

Below is the map of the East African Community (EAC), with its headquarters in Arusha, Tanzania. Burundi, Kenya, Rwanda, Tanzania, South Sudan and Uganda are five countries that makes up the community

Figure 1.2: The East African Community Map

Source: Google

The EAC countries signed a joint protocol setting out the process for an EAC monetary union in 2013 which is envisaged to come into effect by 2024 (IMF, 2015). The implication is that these countries will share a common currency as well as joint monetary policy programs. They will also share common exchange rate management programs as well as their trade policies in their trade with the rest of the world. It is high time for African researchers to focus more on the regional level without ignoring the role of international trade on the domestic economy. Thus, this study will cover the topic of unemployment in relation to exchange rate variability in the economic region of East Africa.

Statement of the Problem. Unemployment is one of the major macroeconomic issues in developing countries. Macroeconomic variable to be looked at when one is concerned about any country's economic progress (Chimnani et al., 2011). Small open economies are prone to foreign economic shocks and movement of people which leads to affect the unemployment rate in a particular area.

Regardless of the regime choice, openness to trade and finance guarantee that the domestic economy will in any way be affected by the changes in the international markets. The exchange rate is a transmission of those effects into a domestic economy. Shaari (2013) pointed out that unemployment is very sensitive to microeconomic variables of exchange rate, per capital GDP, foreign direct investment, net exports and external debts.

Different studies have been conducted to investigate the relationships between microeconomic variables in different regions showing contradicting relationships (Oniore et al, 2015; Trimurti and Komalasari, 2014; Maqbool and Mahmood, 2013). Therefore, it is currently a right time to investigate the impact of microeconomic variables in regions with visions to develop their economies like EAC Community.

Exchange rate volatility affects both the volume and value of trade (Ali, Johari and Alias, 2014) and the domestic economy as a whole through sectors or firms involved in international trade. These are import and export sectors that employ populations in the nations. Hence, variability in value of currencies of the east African countries with respect to other currencies in the world (exchange rate) must affect employments of these countries. Out of the six East African countries, IMF (2014) annual report on exchange rate arrangements reveals that Kenya, Tanzania and Uganda adopt a floating exchange rate system. However, these three countries are the founders of the EAC with a long history of microeconomic ties in policy sharing and desires. Because of that this study investigates how the microeconomic variables affect unemployment rates in the east African economies with a case focus on Kenya, Tanzania and Uganda.

Research Objectives. The main objective of this research is to investigate the impact of macroeconomic variables on unemployment rates of the East African countries. Specifically, the research will:

1. To assess the kinds of relationships that exist between per capital GDP, net export, interest rate, foreign direct investment, external debts, exchange rate variability and unemployment rate in the EAC countries
2. Compare the magnitude of the impact of per capital GDP, net export, interest rate, foreign direct investment, external debts and exchange rate variability on unemployment rate between EAC Countries.

Research Questions. This study will be guided by the following questions

1. What are the kinds of relationships that exist between per capital GDP, net export, interest rate, foreign direct investment, external debts, exchange rate variability and unemployment in the EAC countries?
2. Is there a difference in the impact of per capital GDP, net export, interest rate, foreign direct investment, external debts and exchange rate variability on unemployment between EAC Countries?

Significance of the Study. Academically this study is a partial fulfillment of the researcher's degree in Policy wise, this study is a wakeup call to macroeconomic policy makers of east African countries to plan for economic policies that will promote international trade and stimulate the economy in order to increase employment. Knowledge wise, the study will contribute to scientific knowledge about unemployment and on the impact of exchange rate variability.

Scope of the Study. The aim of this study is to investigate the impact of microeconomic variables on unemployment in EAC Countries. The study covers only three countries with long history of economic integration in the community namely, Tanzania, Uganda and Kenya. Even though, the study is for the six East African countries, it will cover three countries, Kenya, Tanzania and Uganda as the case studies for the entire East African region. This is because each of the unselected countries has differing exchange rate regimes that are neither floating nor flexible as the selected countries. The exchange rate can be variable in floating or flexible regimes.

The remaining part of this work is as follows. The relevant literature is reviewed in the next chapter and followed by the research methodology.

Literature review

Theoretical Literature Review. According to Parker (2010) unemployment is the fraction of economically active population that has no job but looking for one. All unemployment theories are either Keynesian or Classical (Rodriguez, 2015) and both are based on the labor supply and demand framework (Brunner and Meltzer, 1978). Basically, unemployment is when labor demand falls short of labor supply.

Based on the classical school of thought, Rodriguez (2015) states that firms demand labor in the course of their profit motives. Labor demand increases when labor costs (wage) go down and/ or labor productivity increases. Also, an increase in firm's capital goods warrants firm's demand for more labor to operate the capital goods, such as machinery. The Keynesian school asserts that labor demand is a derived demand. Firms hire based on their production plans which depend on the economy's aggregate demand. Hence, it is the aggregate demand that determines the level of employment in the economy. While classical economists believe in the free market mechanism, Keynesians believe in government stabilization policies to tackle down unemployment.

Since the birth of macroeconomics, the link between the exchange rate and employment has been recognized (Frenkel, 2004). Stirboek and Buscher (2000) found that exchange rate volatility cause uncertainties which impacts the nation's economy adversely. Hodges (2005) modeled a risk-averse international trading firm and found that increased volatility propel firm's uncertainty about future profitability and raises the current unemployment.

Empirical Literature Review. There are several empirical evidence that highlight the impact of macroeconomic factors on the employment rate. GDP was found to have a negative effect with unemployment in the developed countries (Oniore et al, 2015; Trimurti and Komalasari, 2014; Maqbool and Mahmood, 2013) as well as in developing countries (O'Nwachukwu, 2016; Gur, 2015). The oppiste results were found by Bakhshi and Ebrahimi (2016), Nyahokwe (2013) and Asif (2013). Bakhshi and Ebrahimi (2016) employed autoregressive econometric model with distributed lag, found a significant negative effect of GDP on unemployment in Iran. Nyahokwe (2013) used the autoregressive nature of models (ARDL model) on time series quarterly data and found a positive effect of GDP on unemployment. Asif (2013) used a panel analysis in an emerging economy and found that GDP is a statistically significant determinant of unemployment with a positive relationship. According to Asif (2013)'s results, GDP alone cannot adequately explain unemployment. These studies provides that the effect of GDP on unemployment is either positive or negative, thus giving uncertain effect.

The population growth rate was found to be a significant positive determinant of unemployment (O'Nwachukwu, 2016; Maqbool and Mahmood, 2013; Asif, 2013; Sam, 2013). Though there are studies which used GDP excluding population in the model (Belke and Setzer, 2006; Mensah et al, 2013; Nyahokwe, 2013; Bruneau and Moran, 2012), the Chimnani et al. (2011)'s per capita GDP minimizes the biases in the quality of economic estimation that might exist by inclusion of both GDP and population. Therefore, this reason gives a Regressor in the current study in place of GDP and population.

Chimnani et al (2011) used autoregressive model of the panel data set, found net exports have a negative effect on unemployment. Similar results were highlighted by Oniore et al (2015) that the degree of a country's openness to international trade is a negative significant determinant of unemployment in the short run. In contrast, Nyahokwe (2013) found that net exports positively affect unemployment. These studies provide opposing results of the effect of net exports on unemployment.

Mpofu (2015) used autoregressive nature of models (GARCH) on time series quarterly data, found that interest rate has a negative effect on unemployment consistent with Mensah et al (2013) 'results. Mensah et al (2013) employed autoregressive model on annual time series data using OLS estimation. Nyahokwe (2013) and Chimnani et al (2011) found a positive effect of on unemployment, thus providing contradicting results.

Oniore et al, (2015), and Eita and Ashipala (2010) found that domestic investment to reduce unemployment while similar result was found by Maqbool and Mahmood (2013), and Sam (2013) for foreign direct investment. Maqbool and Mahmood (2013) found external debt with a positive effect on unemployment in Pakistan. In contrast with Sam (2014)'s results, external debts had negative significant effect on youth unemployment in Kenya.

Bakhshi and Ebrahimi (2016) employed autoregressive econometric model with distributed lag was used to assess the relationship between real exchange rate and unemployment and found a significant negative relationship between exchange rate and unemployment in Iran. The opposite results were obtained by other scholars. Mpofu (2015), Mensah et al. (2013) and Bruneau and Moran (2012), looked at the impact of exchange rate volatility on sector specific employments, found that exchange rate has a significant impact of raising unemployment rate. Bruneau and Moran (2012) focused on developed countries using nominal exchange rate as a proxy for the real exchange rate. Similar results were found by Nyahokwe (2013), and Chimnani et al. (2011). Chimnani et al (2011) studied exchange rate volatility as the statistical change in exchange rate at the national level. Consistent with Belke and Setzer, (2006)'s results that looked exchange rate volatility as the standard deviation of monthly changes of logarithms of monthly exchange rates from a union of countries unit of analysis in a developed world using a panel data. Out of these studies, three focused on developed countries (Bruneau and Moran, 2012, and Belke and Setzer, 2006) while the remaining focused on developing and specifically African countries. All these studies reveal that

exchange rate volatility has a significant impact, either lowering employment growth or raising unemployment rates. This informs our hypothesis that exchange rate variability raises unemployment rate.

Research Gap. There are several studies which have investigated the variables which affect unemployment in macroeconomics. Different kinds of literature described the impact of GDP/per capital GDP, net exports, interest rate, FDI, external debts and exchange rate on the level of unemployment rate. The research gap exists since the reviewed literature give the contradicting results of the effect of these microeconomic variables on unemployment rate regardless of the economic context, specific sector employments and methodology employed in each study. To the best researcher's knowledge, there is no study on the factors affecting unemployment rate in microeconomics in East Africa except Sam (2014) which was conducted in Kenya. The results in the reviewed empirical literature are specific to the countries and cannot conclude the effect of these microeconomic variables on the unemployment rate in East African as whole. This study is the first to investigate the macroeconomic factors (GDP/per capital GDP, net exports, interest rate, FDI, external debts and exchange rate) affecting the unemployment rate in East African Community. With these gaps this research will employ a panel analysis method to investigate the impact of macroeconomic factors (GDP, net export, interest rate, FDI, external debts, and exchange rate) on unemployment in the East African region.

Research Methodology

Research Philosophy and Approach. This study will employ a positivism philosophy, and therefore a deductive research approach will be used to enable the researcher to review theories from literature and move to data so as to corroborate the whole story that explain about the impact of macroeconomic variables on unemployment in EAC Countries.

Population of the Study. The population of the study will be the EAC Countries of Tanzania, Kenya, Uganda, Rwanda, Burundi and Southern Sudan.

Study Area. The study area will cover the three countries which are the founder of the EAC with long economic integration ties. These countries include Tanzania, Uganda and Kenya.

Data Collection Methods. The data will be selected from different sources such as National Bureau of Statistics, Central Bank of Tanzania, Word Data Bank, Federal Offices of Statistics of Tanzania, Uganda and Kenya. The secondary data will be collected from the websites and their reliability confirmed from related offices. The unbalanced data set of three countries Tanzania, Uganda and Kenya will be used.

Data Analysis. Econometric models are used in examining the relationship between dependent and independent variables, so as to obtain the estimates of coefficient for each parameter and to know the significance of the variables (Gabriel, 2017). The regression model will be used to assess the relationship between per capital GDP, net export, interest rate, foreign direct investment, external debts, exchange rate variability and unemployment. The model in the paper "The Effect of Exchange Rate on unemployment rate in asian countries", the fixed effects regression which holds constant average effects of each country, will be applied to estimate the effect of per capital gdp, net export, interest rate, foreign direct investment, external debts, exchange rate variability on unemployment in east african countries. this model provides a room to control the average difference across countries in any observable or unobservable predictors, which incline the influence of omitted variable bias if believed that unobservable variables are not time-variant (he, 2013). the regression equation to be applied in this study is shown below: $du_{it} = \beta_0 + \beta_1 drer_{it} + \beta_2 ne_{it} + \beta_3 gdp_{it} + \beta_4 lned_{it} + \beta_5 fdi_{it} + e_{it}$

The dependent variable, u means unemployment whereas all others are the independent variable like rer means real exchange rate, ne is the net exports; gdp stands for per capital gdp and fdi means foreign direct investment.

Validity and Reliability of the Study. Validity is the concern about measuring what is supposed to be measured (Pascal, 2017).The methods used in this study were also used in the previous studies (He, 2013; Bakhshi and Ebrahimi, 2016; Chimnani et al, n.d.). To enhence the validity of this study, the findings of this study will be related to existing theories and the results of other studies. Further, the use of different sources of data will enable the researcher to test the credibility, reliability and relevance of the data to the research subject. The data reliability will be achieved by appropriate staorage of the data for the maintenance of evidence as proposed by Yin (1994).

Ethical Consideration. Ethics in research project are the norms and standards that differentiate the acceptable and unacceptable conduct (Shah, 2011). The ethical procedures in the planning and execution of this study are crucial. According to Leedy and Ormrod (2005); the principles of confidentiality, integrity, informed consent, honesty, care and the right to privacy are among the ethical norms that should be adhered during the entire research project. This study will be conducted after the related institutions are adequately informed about the objectives of this study and the kind of data required. The governments will be assured that the information provided will be kept anonymous and used only for the purpose of this study.

References

Bakhshi Z. and Ebrahimi, M. (2016). The Effect of Rreal Exchange Rate on Unemployment. AIMI Journals , 4-13.

Boschini, A. J. (2007). Resource curse or not: a question of appropriability. Scandinavian Journal of Economics. , 109 (3), 593-617.

Chimnani H. Bhutto N. A. Butt F. Shaikh S. A. & Devi W. (n.d.). Exchange Rate and Unemployment. Proceedings of 2nd International Conference on Business Management (ISBN: 978-969-9368-06-6) (pp. 1-16). Sukkur: Sukkur Institute of Business Administration.

Edwards, S. (1987). Exchange Rate Missalignment in Developing Countries. Discussion Paper Number 442, (pp. 1-56). Los Angeles.

Egyir, E. K. (2012). The Impacts of Oil and Gas Activities on Fisheries in Western Region of Ghana. Norweygian College of Fisheries Science. University of TromsØ .

Gabriel, G. (2017). The Influence of Economic and Institutional Factors on the Willingness of Consumers to Adopt Natural Gas Vehicles in Tanzania:. University of Dar Es Salaam.

He, X. (2013). Real Effective Exchange Rate and Unemployment: The Difference Between Re-exporting and Non Re-exporting Countries. Clemson University.

Ibaba, S. I. (2009). Sabotage induced oil spillages and human rights violation in Nigeria's Niger Delta. Journal of Sustainable Development in Africa , 11 (4).
Mehlum, H. M. (2006). Institutions and the resource curse. Economic Journal , 116 (5), 1-20.
Pascal, W. (2017). The Effect of Risk Management Practices on the Level of Risk in Oil and Gas Businesses in Tanzania. University of Dar es Salaam.
Ross, M. (2001). Extractive sectors and the poor. Oxfarm America.
Shah, N. (2011). Ethical issues in biomedical research and publication. Journal of Conservative , 14 (3), 205-207.
Stevens, P. (2003). Resource impact – curse or blessing? A literature survey. United Kingdom: University of Dundee,.
Chimanani, H., Bhutto, N. A., Butt, F., Sheikh, S. A., & Devi, W. (2012). The effect of exchange rate on unemployment rate in Asian countries. Proceedings of 2nd International Conference on Business Management.
Eita, Joel Hinaunye and Johannes M. Ashipala (2010), Determinants of unemployment in Namibia. International Journal of Business and Management, Volume 5(10), pp. 92-104.
Muhammad Shahid Maqbool, Tahir Mahmood Abdul Sattar and M. N. Bhalli*Determinants of Unemployment Empirical Evidence from Pakistan PakistanEconomic and Social Review Volume 51, No. 2 (Winter 2013), pp. 191-207
Mpofu, T. R. (2015). Exchange Rate Volatility, Employment and Macroeconomic Dynamics in South Africa
Nyahokwe, O., & Ncwadi, R. (2013). Impact of exchange rate volatility on unemployment in South Africa. Mediterranean Journal of Social Sciences, 4(3), 109–120.
Oniore, J., Bernard, A. and Gyang, E. (2015)."Macroeconomic Determinants of Unemployment inNigeria". International Journal of Economics, Commerce and Management, C.3, S.10, s.215-230.
Park, J. (2010). Models of Unemployment. Economics 314 Coursebook, 2010
Rodriguez, R. A. (2015). Classical versus Keynesian Theory of Unemployment: An approach to the Spanish labor market.
Sam, S. O. (2014). Modeling Economic Determinants of Youth Unemployment in Kenya: A Research Project Submitted in Partial Fulfillment of The Requirements for The Award of The Degree of Master of Social Statistics in the Department of Statistics, School Of Mathematics, University Of Nairobi

LOWERING TRANSACTION COSTS IN INTERNATIONALIZATION THROUGH FAIRTRADE

Afonso Lima, Universidade de Fortaleza, Brazil

Abstract

Among contemporary issues in international business, the link between sustainability and internationalization still provides various perspectives yet to be explored. In this paper we (a) discuss key aspects of Fairtrade, a trade initiative based on economic, social and environmental practices, (b) review the main contributions of transaction cost theory (TCT) to international business (IB), and (c) explain how Fairtrade certification (FC) contributes to international entry and adaptation of firms. Overall, we argue that FC is both a market strategy and a non-market signaling strategy which may in turn reduce transaction costs in internationalization.

Keywords: International business, Transaction cost economics, Sustainability, Fair trade, Fair trade certification.

Introduction

International business (IB) literature has evolved from traditional perspectives, i.e., OLI paradigm and transaction costs theory, to more dynamic and contextual perspectives, i.e., international new ventures (INVs), Dragon Multinationals and Multilatinas. However, as the need for overcoming difficulties and exploring opportunities in IB become more intense, especially in uncertain contexts (Bremmer, 2014; Peng & Luo, 2000; Peng, Wang, & Jiang, 2008), we argue that there are great synergies to be explored between IB and other areas, bringing up new perspectives, complementarities, and answers to key issues. In this paper, we explore interactions between IB and sustainability.

Prior studies involving the connection between both areas involve the effect of environmental standards on foreign direct investment (FDI) (Kheder & Zugravu, 2012; Eskeland & Harrison, 2003; Keller & Levinson, 2002) the need to understand sustainability strategies at the decision level (going beyond premises of competitiveness, managerial control, and regulatory compliance) (Bansal & Bogner, 2002), and the use of sustainability strategies to cope with different institutional environments (Aragón-Correa & Sharma, 2003).

Aragón-Correa and Sharma (2003), for instance, find that features of the general business environment, such as uncertainty, complexity, and munificence, "moderate the relationship between the dynamic capability of a proactive environmental strategy and competitive advantage". More recently, the role of multinational enterprises (MNEs) (an enterprise which owns a controls activity in different countries) (Buckley & Casson, 1976) as sustainability agents has been emphasized: how may MNEs contribute to the achievement of Sustainable Development Goals from UN (Zanten & Tulder, 2018) or how global connectivity may help MNEs become more environmentally sustainable (Maksimov et al., 2019), for example. This calls for a closer look on how companies may use sustainable strategies in dealing with different business contexts.

Likewise, studies involving corporate social responsibility (CSR) have recently aimed at assessing the relationship of social strategies in IB and internationalization. The research of Attig, Boubakri, Ghoul, & Guedhami (2016), for example, indicates that firms 'internationalization is positively linked to the firm's CSR ratings. On top of that, firms with extensive international operations in countries with "well-functioning political and legal institutions" have better CSR ratings. Nyuur, Ofori, & Amponsah (2019), in the same way, found key complementary effects of export orientation and organizational structure in the positive effects of CSR on CA; hence, key CSR resources and capabilities, which include employee engagement and retention and company reputation (Aqueveque, Rodrigo, & Duran, 2018; Nyuur et al., 2019; Opoku-Dakwa, Chen, & Rupp, 2018; Porter & Kramer, 2011), may be enhanced by international activities, i.e., export orientation.

In this paper we explore the connection between sustainability and TCT, one of the traditional perspectives in IB. We explain the effects that sustainable strategies, in this case, Fairtrade certification, may have on IB, specifically on transaction costs faced by firms in new international contexts, i.e., search costs, sourcing costs, learning costs (political-legal and sociocultural aspects), as well as psychic distance.

We argue that as Fairtrade considers different stakeholders in strategic issues, reduces environmental impacts of operations, and enhances quality capabilities (Dragusanu et al., 2014; Hughes et al. 2014; Becchetti & Rosati, 2007), it not only creates a case for differentiated products, but also signals corporate citizenship, as well as long term commitment to communities where they choose to locate. This, in turn, reduces transaction costs that may impair international projects or postpone international investments. In this fashion, sustainability may contribute to internationalization processes and to international survival in different institutional contexts.

We selected FC for two main reasons: it is widely recognized as a sustainable strategy, it is "complete" as it aggregates both environmental and social aspects to the economic perspective, and it requires a systematic organizational commitment for certification. These characteristics display an adequate facet of sustainability for our discussion.

Fair trade and Fair trade Certification

Although one facet of sustainability, Fairtrade itself is a complex, multidimensional concept. It is a labeling initiative (Dragusanu, Giovannuci, & Nunn, 2014), but also a trading partnership (Kleine, 2008), and even an agglutination of a social movement, an alternative form of trade, and a development intervention, all at once (Paul, 2005). Fairtrade seeks to improve the living conditions of deprived workers and communities in developing countries (economic, social, and environmental conditions) by means of backing their organizing for production, structuring favorable trading conditions, and securing rights of these communities (Kleine, 2008; What is Fair trade? 2019). Fairtrade is funded on dialogue, transparency and respect, envisioned to alter conventional trading practices by raising consumer awareness (Brown 1993; Hudson & Hudson 2004; Pedini e Machado

2013; Sick 2008).

Emerging as an alternative mode of trade after the Second World War, at that time, Fairtrade was characterized as a very restricted small-scale trade between trading organizations managed by religious groups; it was not until the 1960s that it gained its actual form with the Dutch support of Nicaraguan coffee producers as a strategy aimed at reducing poverty (Hughes et al., 2014; Pedregal & Ozcaglar-Toulouse, 2011; Wright & Heaton, 2006). Eventually, modern Fairtrade labels were conceived (circa 1988) with the creation of Fairtrade label Max Havelaar by a Dutch NGO. The creation of this label aimed at ensuring sufficient wages to crops growers in low-income countries and was further copied not only in various European countries but also in North America. In 1997, the various national labeling initiatives formed an umbrella association called Fairtrade International, and a common Fairtrade Certification mark was launched in 2002 as several Fairtrade bodies operate at the present (Dragusanu et al., 2014; Kleine, 2008).

Over the years, modern Fairtrade certification has become a high-profile certification system (a system of social and environmental standard setting, monitoring and labelling) for securing social standards in global supply chains, having grown into a $500 million yearly global niche market, with more than 400 companies in the developed world importing and distributing products bearing the Fairtrade mark (Hughes et al., 2014; Wright & Heaton, 2006).

According to Reinecke and Ansari (2015), since 2007, global sales of Fairtrade certified products have increased nearly 50% yearly to reach €4.8 billion in 2012 and encompassing 1.5 million farmers in 59 countries.

Among a series of norms and regulations required by Fairtrade certification, the following are central in order to establish the Fairtrade structure (Wright & Heaton, 2006; Becchetti & Rosati, 2007; Dragusanu et al. 2014):

- Price floor: it is the minimum price for which a Fairtrade-certified product can be sold to a Fairtrade buyer. It is intended to cover the typical costs of sustainable production and to keep up with estimated living wage expenses in the sector; it also forms the basis of a locally administered fund for economic, environmental or social projects in the local community. Above the minimum price, Fairtrade buyers and certified producers remain free to negotiate higher prices on the basis of quality and other attributes. This guaranteed minimum price reduces the risk faced by producers from the high volatility of commodity prices by establishing price stabilization mechanisms (Becchetti & Rosati, 2007; Dragusanu et al., 2014; Kleine, 2008).
- Fairtrade premium also known as social premium, it is paid by the buyer to the producers or cooperative organization in addition to the price floor to foster associativity and democratic processes, which are key in the Fairtrade philosophy. Producers jointly decide on how the premium is to be used, i.e., investments toward productivity, investments in community infrastructure – schools, health clinics, and crop storage facilities –, training for members of the community, provision of educational scholarships, improvements in water treatment systems, conversion to organic production techniques, and so on (Dragusanu et al., 2014).
- Stability and access to credit: Fairtrade buyers agree to long-term contracts (at least one year and often several years) and to provide some advance crop financing to producers if requested. In prefinancing production, Fairtrade buyers contribute to breaking the monopoly of local moneylenders which severely affects small producers that don't have access to formal financial markets (Dragusanu et al., 2014; Becchetti & Rosati, 2007).
- Proper working conditions: working conditions involve freedom of association, safe working conditions, and wages at least equal to the legal minimum or to regional averages. They also involve interventions to improve working conditions and to abolish aspects leading to child labor, generally by means of monetary integration of their low household income (Dragusanu et al., 2014; Becchetti & Rosati, 2007).
- Institutional structure: farmers are encouraged to form associations or cooperatives where decisions are made democratically and with a transparent administration that may facilitate sales and manage the premium paid to the organization in an accountable manner. For some products, such as tea, bananas, pineapples, and flowers, not only associations or cooperatives, but also larger enterprises may become Fairtrade certified. In cases such as the latter, joint committees of workers and managers must be formed and democratically structured (Dragusanu et al., 2014; Becchetti & Rosati, 2007).
- Environmental protection: the environmental criteria are meant to ensure that the members work towards environmental sustainability of productive processes as an integral part of production management by minimizing or eliminating the use of less-desirable agrochemicals and replacing them, where possible, with natural biological methods, as well as adopting practices that safeguard the health and safety of farm families, workers, and the community. Producers must provide basic environmental reports summarizing their impacts on the environment. The production of genetically modified crops by farmers is not allowed, though such aspect appears to be only relevant for a few crops for which genetically modified varieties are available to these producers (Dragusanu et al., 2014; Becchetti & Rosatti, 2007; Shaw et al., 2006.
- Creation of long-term relationships: in Fairtrade, long-term relationships between importers and producers and the provision of 'business angels' and export services to the latter, i.e., information about consumers' tastes in foreign markets, non-tariff trade barriers, and import regulations, are crucial. In this respect, Fairtrade may be conceived as a temporary income-support and inclusion mechanism, aimed to promote a transition to higher-return activities (Leclair, 2002; Beccheti & Rosatti, 2007).

For a product to be sold under the FT mark, all actors in the supply chain – including importers and exporters – must also be FT certified; the standards are not only tailored for each crop but also for the different actors involved in the chain. Thus, the certifying organization has a central role in empowering the organizations operating in the FT market. In addition, it determines not only whether or not a cooperative or association enters the FT market through the certification system implemented, but also the continuous improvement of the certification in accordance with market requirements. The rules, in turn, are the assurance that the principles of the FT market (namely transparency and solidarity) will be followed by all agents of the productive chain (Pedini & Machado, 2014) and, it is in the establishment of the minimum price, available credit, and relationship stability that information asymmetry and uncertainty is reduced along these production chains and, therefore, the role of the certifying agent is strengthened as an active and fundamental agent in the chain (Smith, 2009).

FT principles and practices have made some significant contributions to improving incomes and reducing vulnerability for

many small-scale producers (Bacon 2005; Neigh 1997; Raynolds, Murray, and Taylor 2004) and in initiating new forms of governance in commodity production and marketing (Taylor, Murray, and Raynolds 2005). Among the most important long-term contributions of FT are the organizational skills and other forms of human and social capital that small, marginal producers have gained through their partnerships with FT organizations (Bray, Sanchez, and Murphy 2002; Raynolds, Murray, and Taylor 2004). On top of that, FT has been accountable in conveying social concerns into the global marketplace as well as creating a market space in which small-scale producers hold an advantage over larger producers and multinational corporations.

Social development based on market initiatives imply poverty reduction (wellbeing) through economic growth. But while growth is evaluated in simpler, direct ways, experts may argue that development, on the other hand, is a more complex, indeterminate variable and so, more difficult to manage or control; hence, market perspectives may not always match development issues (Dolan, 2010; Reinecke & Ansari, 2015). This suggests that while FT is not a definitive answer for inequality in various regions of the world, it may provide producers, communities and other coordinated agents with appropriate resources, including capabilities, so that they may compete in more equitable conditions. Development, thus, is much more related to people and, so, involves structural, cultural, and behavioral aspects that makes development complex, difficult to predict, and hard to quantify (Holland & Ruedin, 2012; Reinecke & Ansari, 2015). A key example of such aspect is provided by the work of Pedini and Machado (2013): through a survey-centered field research with family coffee growers, the authors found that their empowerment relies essentially on a cognitive aspect, that is, the notion of the reality in which they live and the importance they place in the associative environment and in collective work.

Fairtrade labeling initiative or certification – among countless voluntary sustainability standards – of production processes is a form of product differentiation and this, by its turn, is what creates a market for Fairtrade. Contrary to the classical economic model in which price is the major determinant of consumer choice, in Fairtrade, consumers make their decisions based on social and environmental criteria as they become more aware of the social and environmental impact of their own consumption. Such movement is not only a response to, but also a means of promoting an increased demand for more “ethical” product alternatives (Pedini & Machado, 2014). It should be highlighted that such ethical concerns encompass a variety of issues, such as the environment, animals, society and people which, in some way, are germane to every product and service marketed (Shaw & Clarke, 1999; Shaw et al. 2006). However, beyond product differentiation, there are also key aspects that Fairtrade may offer, i.e., reputation (Castaldo, Perrini, Misani, & Tencati, 2008; Fombrun, 2005) and non-market strategies (Baron, 1995; Cuervo-Cazurra & Genc, 2011), for instance. Such aspects are essential in international endeavors.

Transaction Costs, Institutional Environment, and Internationalization

As a refinement of Coase’s (1937) seminal work, TCT has largely contributed to the understanding of key strategic and organizational issues within IB. Such issues involve the understanding of how MNEs are formed and operate, entry mode choices, ownership of foreign units, and international location decisions (Anderson & Gatignon, 1986; Ghoshal & Moran, 1996; Hennart, 2009; 2010; Chang et al., 2015).

TCT is considered a theory of firm governance, in which its activities and operations are assessed in terms of transaction costs, in opposition to the traditional view of production costs in economics and management. When it comes to IB, a perspective that places transactions as unit of analysis is capital as it suggests more realistic grounds (Hennart, 2010).

According to TCT, as market transactions may engender uncertainties, non-conformities or unplanned events, firms need to consider costs outside of their intramural processes/operations. Hence, transaction costs are to be faced by firms when they rely on the market to acquire equipment, raw materials, services or when they establish an interface with other agents. These costs include, for instance, negotiating costs, and costs of making and enforcing contracts as a legal resource to ensure transaction terms are met.

In general, there are three main factors that cause such transaction costs are limited rationality, opportunism, and asset specificity (Klein et al., 1990; Rindfleisch and Heide, 1997; Brouthers & Brouthers, 2003). Bounded rationality, normally associated to information asymmetry, occurs when agents act rationally, but are faced with a number of limitations while accessing or processing information; an uncertain environment implicates more space for opportunistic attitudes and actions, which in turn, increases the need for more contractual relations and, hence, transaction costs.

In the case of opportunistic behavior in transactions, this occurs as economic agents act motivated by self-interest and opportunism, although ethical and cultural aspects are not fully considered and occasionally witnessed in market transactions. Opportunistic behavior arises when parts may act non-ethically, dishonoring contracts. So, in order to prevent losses due to opportunistic behavior, economic agents seek out contractual agreements and, the more this is needed, the higher the transaction costs associated with it will be. In the case of relationships and relational contracts in which ethics and reputation are observed, costs are translated in terms of historical relationships, which are very difficult to reproduce.

Regarding asset specificity, these are assets for which there are very limited alternative use, that is, they can’t be reemployed without considerable value loss. In such context, there is very few producers and buyers for this product and, the higher the asset specificity, which involves technical aspects, mainly, the larger the adaptation risks and hence, transaction costs. Technical specifications may limit possible alternative application, R&D personnel, which may not be easily relocated or copied, as well as location specificity, which is explained by physical immobility of certain assets.

As transaction costs increase with market transactions, firms may opt to substitute this governance structure by a hierarchical one, that is, internalizing activities and operations sourced in the market, as a way to save transaction costs. Thus, through the TCT perspective, MNEs decisions to enter foreign markets take into consideration the “most efficient form of governance” or the entry mode that eliminates most of the transaction costs (Brouthers et al., 2003). MNEs or businesses should then use maximize the net value of both production and governance costs as a standard in choosing their governance structure for international transactions. Thus, in making outsourcing decisions, not only the internal and external costs of providing the good or service should be assessed, but also the cost of managing the transaction, internally and externally.

In the case of MNEs, the reason to establish overseas operations is synthesized in three postulates: (1) firms are profit maximizers in a world of imperfect markets; (2) when facing imperfect markets for intermediate products, there is enough incentive for firms to evade them by means of internal markets, taking under common ownership and control the activities which are available in the market; and (3) as internalization of markets across national boundaries occur, they engender MNEs

(Buckley & Casson, 1976; Hennart, 2010). Within this discussion on international expansion, it should be noted the need for international transfer of factors of production such as knowledge and managerial talent (Hennart, 2010).

Generally, internalization of activities are motivated by four main categories of factors: (1) industry-specific factors, which encompass both product characteristics and market structure; (2) region-specific factors, which involve both social and geographical characteristics of regions from where transactions take place, (3) country-specific factors, i.e., political and fiscal compatibility between the countries at hand, and (4) firm-specific factors, which involve resources, capabilities, know-how, and even core competencies which are vital in organizing an internal market (Buckley & Casson, 1976).

Concerning internal markets, Buckley and Casson argue that MNEs are more efficient than markets because they use internal prices. Using internal prices has particular advantages for transferring knowledge because it makes it possible to apply discriminatory pricing across markets, to sidestep government restrictions through transfer pricing, and to replace failing future markets. Hence Buckley and Casson see MNEs as internalizing both pecuniary externalities through price discrimination and the avoidance of taxes, and non-pecuniary externalities through the establishment of internal prices (Hennart, 2010).

As operation and transaction costs vary according to the international context, market-based transactions and internalization aren't the sole possibilities for institutional arrangements in internationalization, but two opposite choices in a line of possibilities. Between market-based transactions, by means of arm's length exports, and fully managed processes in MNEs, as exchange occurs internally, firms may also govern activities across borders employing contracts or combining aspects of both market and hierarchy in the form of contracts, i.e., licensing, franchising, and vertical value chains (Hennart, 2010).

Transaction costs in internationalization are evident especially in the case where firms from developed economies, where institutions are predictable and mature, enter transition economies, economies where economic and institutional environments are marked by constant changes and linked to substantial risks (Peng & Luo, 2000). However, whether internationalization of firms from developed to developing economies or the other way, transaction costs emerge from information asymmetry or from the lack of information about business partners, from negotiations with inexperienced business partners, from uncertain regulatory issues, from excessive bureaucracy and corruption, from an unreachable court system and weak rule of law among other factors (Peng & Luo, 2000; Meyer, 2001; Hennart, 2010). On the other hand, internalization may bring high costs of internal organization: startup costs, incentives for quality and customer responsiveness, learning curve, employee shirking etc. (Masten, Meehan, & Snyder, 1991; Meyer, 2001).

In an effort to reduce transaction costs, Hennart (2010) retrieves the concept of behavioral constrain as a strategy. Behavioral constrain in a hierarchical structure or internal control, "consists in choosing employees who have the same goals as the boss, or in persuading individuals with different goals to change them and internalize those of the boss", whereas behavioral control in a market-based transaction consists in "constraining the agent's behavior, either through direct observation or through bureaucratic rules and procedures", but also with awareness of potential gains through cooperation. It should be noted, however, that the cost of such strategies may differ with the characteristics of transactions (Hennart, 2010). In either way, FT principles seem to provide an answer to both actions: certification and governance as means of rules to be followed by a value chain and the shared principles that may engage employees under one hierarchical structure.

Institutions

As a way to understand how FT and FT certification may improve internationalization by reducing transaction costs, there is a need to discuss institutions; as many transaction costs originate from the institutional background where economic activity takes place, in this section, we discuss the origins and contemporary issues involving institutions in IB.

Institutional environment and institutions have been always present in IB ever since the works of Hymer (1976) e Buckley and Casson (1976); however, it was only in the late 1990s that the themes started to appear more deeply in internationalization studies. The institutions-based view (IBV) that followed this is supported by two main theoretical fields: institutional economics (North, 1990, Williamson, 1985) and the sociological perspective of the new institutionalism (Scott, 1995). Both views have provided a clear understanding about performance differences among firms both in the same and in different contexts (Peng, 2014).

Institutions assume the form of instruments to limit or shape interactions in different spheres: political, economic and social, but also enforcing collective views or norms and customs around issues of legality, legitimacy, and morality (North, 1990; Scott, 1995). In this way, it is natural to consider that multiple institutions may affect actions and operations of companies, and in the same way, companies must deal with different institutional changes, whether in one country or in exploring foreign markets. Institutions are a crucial aspect in any economy, as they constrain or facilitate business, in particular, they affect competitive advantage and the entry and survival in internationalization. Such challenges have been recently emphasized in the context of developing economies and specially in the case of economies in institutional transition (Chang et al., 2015; Hoskisson et al., 2000; Meyer, 2001; London & Hart, 2004; Peng, 2008), although lesser emphasis has been given to studies addressing the influence of institutions in CA and internationalization in developed economies as well (Kheder & Zugravu, 2012; Li, 1995; Triebswetter & Hitchens, 2005; Yamakawa et al., 2008).

When it comes to the MNEs, entering a foreign market requires adaptation of strategies to this new context. Adaptation of strategies is needed to answer to demands of the institutions in host countries (Meyer, 2001; Peng, 2000). As an institutions-based view has become extensively applied in IB (Peng et al., 2008, Peng, 2009), "particularly in the study of emerging economies" (Cuervo-Cazurra and Genc, 2011, Cuervo-Cazurra, 2012); in this way, understanding the alignment between contextual characteristics and entry modes, governance structure and adaptation of strategies, as well as the role and effects of institutions in reducing transaction costs (Hoskisson et al., 2000), have become crucial to internationalization and global strategies (Meyer, 2001).

Conclusions

As sustainability continues to be an appeal for collective action in a global scale, it is mandatory for both researchers and practitioners to visualize the impact of sustainable strategies of businesses and companies to other areas; similarly, in order to

foster and sustain more sustainable actions, a closer look into how other areas may take advantage of sustainable strategies is crucial.

These joint initiatives have proved useful in overcoming criticisms, taking each area or phenomena in isolation, but also in improving managerial practice. In the first case, the belief in FT as a sustainable strategy over time continues to be a polemic and challenging issue, but it may be supplanted by a perspective of FT as a development stage in which empowerment and critical capabilities are nurtured and critical market conditions are appropriately provided for organizational growth. Likewise, as internationalization and adaptation to foreign institutions require a closer look to specificities of each context, sustainable strategies may provide an ample answer in facilitating this, reducing transaction costs.

Specifically, in combining FT and internationalization, market adaptation initiatives may accelerate the development of critical capabilities necessary for certified organizations to achieve competitiveness and, thus, contribute more effectively to local development.

As an example, Maksimov et al. (2019) show that MNEs with greater global connectedness in terms of international diversification or international environmental certification possess knowledge advantages in cultivating dynamic green capabilities; this indicates that as knowledge flows freely with insignificant transaction costs in a hierarchical multinational structure, such capabilities may emerge as a result of intense sharing of experiences. In such context, social ties and organizational culture could be a way to promote integrity and effectiveness in internal organization. This is one fundamental aspect of FT certification.

In another example, Zanten and Tulder (2018), find that MNEs engage more with Sustainable Development Goals (SDGs) targets that are actionable within their (value chain) operations than those outside of it. This may indicate that these value chains may perceive the first possibility as one with lower transaction costs, that is, within the reach of their existing operations and within their capabilities.

FT certification also signals long-term commitment to communities in the context of a host country: an international certification may reduce the market trust issue caused by psychic distance and, at the same time, environmental and social know-how, as well as quality issues inherently linked to certified operations, although quality aspects related to market preferences should also be observed. This, in turn, may reduce liability of foreignness, i.e., search costs, sourcing costs, learning costs (political-legal and sociocultural aspects), as well as psychic distance, which impacts on reputation and legitimacy. In this way, FT certification works not only as a key strategic asset, but also as a valuable non-market strategy in the context of internationalization.

In bridging these two themes, this paper offers relevant contribution in exploring synergies between sustainability strategies and internationalization costs both in a theoretical and in a practical way. The majority of studies involving FT emphasize producers and cooperative arrangements in the first productive stages of supply chains, as such stages are frequently marked by structural fragilities. However, we argue for a more integrated perspective throughout the productive chain, as learning engagement of entrants in foreign markets may contribute to accelerating the development of capabilities necessary to compete successfully in a foreign context. Moreover, MNEs may also engage in FT certification for their supply chains as a sustainability strategy which may also reduce transaction costs in internationalization. This perspective has not been addressed in the FT literature.

Reference

Anderson, E. M., & Gatignon, H. (1986). Modes of Foreign Entry: A Transaction Costs Analysis and Propositions. Journal of International Business Studies, 17(3), pp. 1-26.

Aragón-Correa, J. A., & Sharma, S. (2003). A Contingent Resource-Based View of Proactive Corporate Environmental Strategy. Academy of Management Review, 28(1), pp. 71-88 .

Attig, N., Boubakri, N., Ghoul, E., & Guedhami, O. (2016). Firm Internationalization and Corporate Social Responsibility. Journal of Business Ethics, 134(2), pp. 171-197.

Bansal, P., & Bogner, W. C. (2002). Deciding on ISO 14001: Economics, Institutions, and Context. Long Range Planning, 35(3), pp. 269-290.

Baron, D. P. (1995). Integrated Strategy: Market and Nonmarket Components. California Management Review, 37(2), pp. 47-65.

Bechetti, L., & Rosati, F. C. (2007). Global Social Preferences and the Demand for Socially Responsible Products: Empirical Evidence from a Pilot Study on Fair Trade Consumers. World Economy, 30(5), pp. 807-836.

Boeh, K. K. (2011). Contracting Costs and Information Asymmetry Reduction in Cross-Border M&A. Journal of Management Studies, 48(3), pp. 568-590.

Brammer, S. J., & Pavelin, S. (2006). Corporate Reputation and Social Performance: The Importance of Fit. Journal of Management Studies, 43(3), pp. 435-455. doi:10.1111/j.1467-6486.2006.00597.x

Brouthers, K. D. (2013). Institutional, Cultural and Transaction Cost Influences on Entry Mode Choice and Performance. Journal of International Business Studies, 44(1), pp. 1-13.

Brouthers, K. D., Brouthers, L. E., & Werner, S. (2003). Transaction Cost-Enhanced Entry Mode Choices and Firm Performance. Strategic Management Journal, 24(12), pp. 1239-1248.

Brouthers, K., & Brouthers, L. E. (2003). Why Services and Manufacturing Entry Mode Choices Differ: The Influence of Transaction Cost Factors, Risk and Trust. Journal of Management Studies, 40(5), pp. 1179-1204.

Buckley, P. J., & Casson, M. (1991). The Future of the Multinational Enterprise (2nd ed.). London: Macmillan.

Buckley, P. J., & Casson, M. (1996). An Economic Model of International Joint Venture Strategy. Journal of International Business Studies, 27(5), pp. 849-876.

Cao, Z., Li, Y., Jayaram, J., Liu, Y., & Lumineau, F. (2018). A Meta-Analysis of the Exchange Hazards-Intefirm Governance Relationship: An Informal Institutions Perspective. Journal of International Business Studies, 49(3), pp. 303-323.

Castaldo, S., Perrini, F., & Misani, N. T. (2008). The Missing Link between Corporate Social Responsibility and Consumer Trust: The Case of Fair Trade Products. Journal of Business Ethics, 84(1), pp. 1-15.

Chang, J., Bai, X., & Li, J. J. (2015). The Influence of Institutional Forces on International Joint Ventures' Foreign Parents' Opportunism and Relationship Extendedness. Journal of International Marketing, 23(2), pp. 73-93.
Cuervo-Cazurra, A., & Genc, M. E. (2011). Obligating, Pressuring, and Supporting Dimensions of the Environment and the Non-Market Advantages of Developing-Country Multinational Companies. Journal of Management Studies, 48(2), pp. 441-455. doi:10.1111/j.1467-6486.2010.00964.x
Dragusanu, R., Giovannuci, D., & Nunn, N. (2014). The Economics of Fair Trade. Journal of Economic Perspectives, 28(3), pp. 217-236. doi:10.1257/jep.28.3.217
Easterby-Smith, M., Thorpe, R., & Jackson, P. R. (2015). Management Business Research. Sage.
Eisenhardt, K. M. (1989). Making Fast Strategic Decisions in High-Velocity Environments. Academy of Management Journal, 32(3), pp. 543-576.
Eisenhardt, K. M., & Bourgeois III, L. J. (1988). Politics of Strategic Decision Making in High-Velocity Environments: Toward a Midrange Theory. Academy of Management Journal, 31(4), pp. 737-770.
Eskeland, G. S., & Harrison, A. E. (2003). Moving to greener pastures multinationals and the pollution haven hypothesis. Journal of Development Economics, 70(1), pp. 1-23.
Fombrun, C. J. (2005). A World of Reputation Research, Analysis and Thinking - Building Corporate Reputation through CSR Initiatives: Evolving Standards. Corporate Reputation Review, 8(1), pp. 7-12.
Galbreath, J. (2019). Drivers of Green Innovations: The Impact of Export Intensity, Women Leaders, and Absorptive Capacity. Journal of Business Ethics, 158, pp. 47-61.
Ghoshal, S., & Moran, P. (1996). Bad for Practice: A Critique of the Transaction Cost Theory. Academy of Management Review, 21(1), pp. 13-47.
Hennart, J.-F. (2010). Transaction Cost Theory and International Business. Journal of Retailing, 86(3), pp. 257-269.
Hill, C. W., & Kim, C. (1988). Searching for a Dynamic Theory of Multinational Enterprise: A Transaction Cost Model. Strategic Management Journal, 9(Special issu), pp. 93-104.
Hoskisson, R. E., Eden, L., Lau, C. M., & Wright, M. (2000). Strategy in Emerging Economies. Academy of Management Journal, 43(3), pp. 249-267.
Hughes, A., McEwan, C., Bek, D., & Rosenberg, Z. (2014). Embedding Fairtrade in South Africa: Global Production Networks, National Initiatives and Localized Challenges in the Northern Cape. Competition & Change, 18(4), pp. 291-308. doi:10.1179/1024529414Z.00000000062
Keller, W., & Levinson, A. (2002). Pollution abatement costs and foreign direct investment inflows to U.S. States. The Review of Economics and Statistics, 84(4), pp. 691-703.
Kheder, S. B., & Zugravu, N. (2012). Environmental Regulation and French Firms Location Abroad: An Economic Geography Model in an International Comparative Study. Ecological Economics, 77, pp. 48-61.
Kleine, D. (2008). Negotiating Partnerships, Understanding Power: Doing Action Research on Chilean Fairtrade Wine Value Chains. Geographical Journal, 174(2), pp. 109-123. doi:10.1111/j.1475-4959.2008.00280.x
Koch, P. T., Koch, B., Menon, T., & Shenkar, O. (2016). Cultural Friction in Leadership Beliefs and Foreign-Invested Enterprise Survival. Journal of International Business Studies, 47(4), pp. 453-470.
Li, J. (1995). Foreign Entry and Survival: Effects of Strategic Choices on Performance in International Markets. Strategic Management Journal, 16(5), pp. 333-351.
Maekelburger, B., Schwens, C., & Kabst, R. (2012). Asset Specificity and Foreign Market Entry Mode Choice of Small and Medium-sized Enterprises: The Moderating Influence of Knowledge Safeguards and Institutional Safeguards. Journal of International Business Studies, 43(5), pp. 458-476.
Maksimov, V., Wang, S. L., & Yan, S. P. (2019). Global Connectedness and Dynamic Green Capabilities in MNEs. Journal of International Business Studies, forthcoming.
Meyer, K. E. (2001). Institutions, Transaction Costs, and Entry Mode Choice in Eastern Europe. Journal of International Business Studies, 32(2), pp. 357-367.
Meyer, K. E., Estrin, S., Bhaumik, S., & Peng, M. W. (2009). Institutions, Resources, and Entry Strategies in Emerging Economies. Strategic Management Journal, 30(1), pp. 61-80.
Nyuur, R. B., Ofori, D. F., & Amponsah, M. (2019). Corporate Social Responsibility and Competitive Advantage: A Developing Country Perspective. Thunderbird International Business Review, 61(4), pp. 551-564.
Paul, E. (2005). Evaluating Fair Trade as a Development Project: Methodological Considerations. Development in Practice, 15(2), pp. 134-150.
Pedini, S., & Machado, R. T. (2014). Fair Trade: Possibilidades de Empoderamento de Cafeicultores Familiares no Sul de Minas Gerais. Estudos Sociedade e Agricultura, 22(2), pp. 457-481.
Pedregal, V. D., & Ozcaglar-Toulouse, N. (2011). Why does not Everybody Purchase Fair Trade Products? The Question of the Fairness of Fair Trade Products' Consumption for Consumers. International Journal of Consumer Studies, 35, pp. 655-660. doi:10.1111/j.1470-6431.2010.00990.x
Peng, M. W., & Luo, Y. (2000). Managerial ties and Firm Performance in a Transition Economy: The Nature of a Micro-Macro Link. Academy of Management Journal, 43(3), 486-501. doi:10.2307/1556406
Peng, M. W., Sun, S. L., Pinkham, B., & Chen, H. (2009). The Institution-Based View as a Third Leg for Strategy Tripod. Academy of Management Perspectives, 23(3). doi:10.5465/amp.2009.43479264
Peng, M. W., Wang, D. Y., & Jiang, Y. (2008). An Institution-Based View of International Business Strategy: A Focus on Emerging Economies. Journal of International Business Studies, 39(5), pp. 920-936.
Raynolds, L. T., Murray, D., & Taylor, P. L. (2004). Fair Trade Coffee: Building Producer Capacity via Global Networks. Journal of International Development, 16(8), pp. 1109-1121.
Reinecke, J., & Ansari, S. (2015). What is a "Fair" Price? Ethics as Sensemaking. Organization Science, 26(3), pp. 867-888.
Shaw, D., & Clarke, I. (1999). Belief Formation in Ethical Consumer Groups: An Exploratory Study. Marketing Intelligence & Planning, 17(2/3), pp. 109-119.
Shaw, D., Hogg, G., Wilson, E., Shiu, E., & Hassan, L. (2007). Fashion Victim: The Impact of Fair Trade Concerns on Clothing Choice. Journal of Strategic Marketing, 14(4), pp. 427-440.

Shenkar, O., Luo, Y., & Yeheskel, O. (2008). From "Distance" to "Friction": Substituting Metaphors and Redirecting Intercultural Research. Academy of Management Review, 33(4), pp. 905-923.
Smith, A. M. (2009). Evaluating the Criticisms of Fair Trade. Economic Affairs, 29(4), pp. 29-36.
Triebswetter, U., & Hitchens, D. (2005). The Impact of Environmental Regulation on Competitiveness in the German Manufacturing Industry - A Comparison with other Countries of the European Union. Journal of Cleaner Production, 13(7), pp. 733-745.
Verbeke, A., Ciravegna, L., Lopez, L. E., & Kundu, S. K. (2019). Five Configurations of Opportunism in International Market Entry. Journal of Management Studies, 56(7), pp. 1287-1313.
What is Fairtrade? (2019, December 12). Retrieved from Fairtrade International: https://www.fairtrade.net
Williamson, O. E. (1975). Markets and Hiearchies: Analysis and Antitrust Implications. New York: Free Press.
Williamson, O. E. (1979). Transaction Cost Economics: The Governance of Contractual Relations. Journal of Law and Economics, 22(2), 233-261.
Williamson, O. E. (1985). The Economic Institutions of Capitalism. New York: Free Press.
Wright, L. T., & Heaton, S. (2006). Fair Trade Marketing: An Exploration through Qualitative Research. Journal of Strategic Marketing, 14, pp. 411-426. doi:10.1080/09652540600948019
Xu, D., & Shenkar, O. (2002). Institutional Distance and the Multinational Enterprise. Academy of Management Review, 27(4), pp. 608-618.
Yamakawa, Y., Peng, M. W., & Deeds, D. L. (2008). What Drives New Ventures to Internationalize from Emerging to Developed Economies? Entrepreneurship: Theory and Practice, 32(1), pp. 59-82.
Zanten, J. A., & Tulder, R. v. (2018). Multinational Enterprises and the Sustainable Development Goals: An Institutional Approach to Corporate Engagement. Journal of International Business Policy, 1(3-4), pp. 208-233.

UNLOCKING THE POWER OF SMALLHOLDER FARMERS FOR SUSTAINABLE AGRICULTURE IN SOUTHERN AFRICA: A ZIMBABWE CASE STUDY

Steven J. Malecek, Water Pathways, LLC, Plano, Texas, USA
Raphael Mthombeni, Intuba, Cleburne, Texas, USA
Lashier S. Ncube, Turning Matabeleland Green (TMG), Bulawayo, Zimbabwe

Abstract

Smallholder famers are destined to play an increasingly important role in food security in Africa, owing to growing urbanization, their being currently responsible for 80% of food production in sub-Sahara Africa, and expected further development of uncultivated land for agriculture where smallholders will continue to play a major role. Despite their significance, smallholder farmers face numerous challenges that stand to limit their potential; among them being inadequate infrastructure and public services, lack of access to water, energy, and other agricultural inputs, insecurity with land tenure, and financing constraints.

This study did not attempt a comprehensive assessment of these challenges, but rather applied a case study approach to examine key issues for smallholder farmers in the vicinity of Bulawayo, in southern Zimbabwe. A value chain model conveyed the case study scenario which involved Hamara, a local food processing and retail company, smallholder farmers, and a partnership between Hamara and TMG, a non-profit training organization for Hamara. Also setting the stage for smallholder sustainability is Intuba, a non-profit organization with water and agriculture projects across a five-country region in Southern Africa, including Zimbabwe.

The study highlighted three key factors in establishing sustainable smallholder agriculture: training, partnerships, and market access. An apprenticeship program supported by Hamara, and community outreach training provided by TMG, equips smallholder farmers with both agriculture and business skills. Partnerships facilitate training and leverage the regional project work of Intuba with water supply, solar pumping, drip irrigation, and raised bed farming methods for rural communities. Market access, being pivotal in enabling sustainable smallholder agriculture, is realized through an innovative contract farming, out-grower model established by Hamara. Similar models have received growing attention from smallholder organizations in Africa.

Introduction

Smallholder famers are destined to play an increasingly important role in food security for Africa. Several factors argue for this enhanced role: one is the pace of urbanization in Africa – the fastest in the world with 60 per cent of all Africans expected to be living in cities by 2050, thus creating greater dependency on rural areas for food supply (AGRA, 2018: 1). Secondly, with African agriculture dominated by smallholder farmers who comprise 70 per cent of the sub-Sahara population (AGRA, 2018: 2) and produce 80 per cent of the food in this region (Patton, 2014: 1), smallholder farmers will be increasingly relied upon for both rural and urban food supply. A third factor which portends an expanded role for smallholder famers is the considerable potential for increased agricultural land; around 60 percent of the Earth's uncultivated land is in Africa, representing some 600 million hectares (Ernst, 2014: 2). Developing this land for agriculture will likely involve smallholder farmers as small farms (two hectares or less) are seen to remain the dominant class of producers in African agriculture. Smallholder farmers are therefore integral to not only increased agricultural productivity, but also social stability, as small farms are employment intensive and pro-poor. (AGRA, 2017: 10; Golin, 2014: 11-13).

Despite this promising outlook, smallholder farmers in Africa face numerous challenges in their ability to scale up and establish sustainable businesses. These challenges exist in various realms; at a society-wide level are infrastructure needs such as roads and energy supply (ASFG, 2013: 30). There are also public services needs such health care and education that affect agricultural productivity and efficiency. The legal and regulatory environment for property rights protection and contract enforcement further underpin smallholder viability.

More specific to smallholder farmer opportunities and operations are access to natural resources, notably land (land tenure) and water (water rights), and access to inputs for farming such as seeds and fertilizer. Central to enabling sustainable smallholder business operations will be access to credit, financial services, and access to markets; these being also influenced by government policies and the availability of buyers.

Other issues that confront smallholder farmers and women in particular are gender equity and a lack of collective influence by them. (ASFG, 2013: 52; Golin, 2014: 5). Agriculture is a leading source of employment and income for women in Africa as two thirds of women active in the labor market are employed in agriculture (Golin, 2014: 5), yet they face disproportionate obstacles in accessing inputs and markets owing to their typically lower social status and vulnerability to weak enforcement of land rights. Women formally own only 1% of agricultural land in Africa yet produce 80% of the food through the labor they provide (ASFG, 2013: 27). A pooling of resources and collective action by womens-only farmers groups can, however, strengthen their social standing and market influence (ASFG, 2013: 52).

Objective and Scope. This paper does not attempt to address the full range of aforementioned issues and challenges faced by smallholder farmers in Africa. Rather, a case study approach is taken with a focus on smallholder farmers in Southern Africa, and Zimbabwe in particular, where water supply, off-grid power supply, and access to agriculture inputs and markets are among the priority needs to enable sustainable smallholder farming businesses. Considerations related to socio-economic conditions, infrastructure needs, government policies, and legal and regulatory provisions certainly factor into the feasibility of sustainability; however, the availability of physical inputs like water, energy, and seeds, and in turn, access to processing facilities and markets to sell agricultural output are perhaps closest to farming operations.

This case study draws upon smallholder agriculture projects within approximately 200 km of Bulawayo, a city of approximately 700,000 population located in southwest Zimbabwe along the border between the two provinces of Matabeleland North and Matabeleland South (Figure 1). While still in various phases of development, the approach taken thus far with demonstrable success in establishing sustainable smallholder farms has had three main components; these include: 1) training, 2) partnerships, and 3) access to markets for smallholder agricultural production.

Figure 1. Zimbabwe location map of Matabeleland North and South Provinces and study area

The objective of this paper is therefore to share the experience gained thus far and provide some insights on what has worked well and how the approach might be improved. While this experience is Zimbabwe-specific, there are commonalities with conditions in neighboring counties that allow for some generalizations.

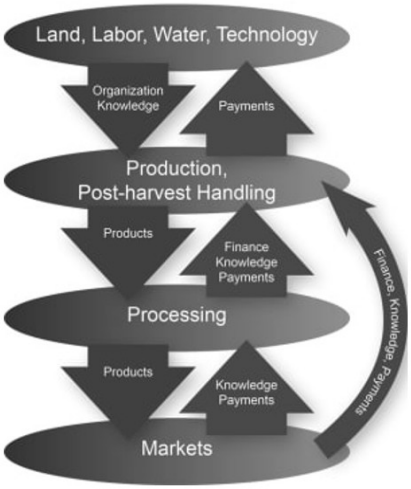
The agricultural value chain. As an aid to examining the various facets of the Zimbabwe case and how they are interrelated, a generalized agricultural value chain model provides a helpful context (Figure 2). An agricultural value chain can be defined set of linked activities that transform inputs (land, labor, water, technology, et al) into an agricultural product that undergoes a series of value-added activities involving various actors and actions until reaching markets and consumption (Norton 2014: 1). These actors and actions relate not only to the physical movement of produce from post-harvest handling to industrial processing, packaging, storage, and transport, but also the provision of technologies, training, finance, contractual arrangements, and payment systems, all of which link producers to markets.

As depicted in Figure 2, the agricultural value chain has two directions of information flows: producers and the physical goods they produce, inform processors, handlers, and markets of volumes, locations, and timing requirements, while markets inform producers in the reverse direction of prices and needed quantities, quality, and product type. Each actor upstream in value chain retains a share of the final selling price through the established payment system (AGRA, 2017: 92; Norton, 2014: 1).

Zimbabwe case study

The Hamara Group. The Hamara Group headquartered in Bulawayo, Zimbabwe operates a diversified food processing, distribution, and retail business that sources tomatoes, potatoes, and other vegetables from local agriculture producers. The company also sources and markets chickens, eggs, and milk from local poultry and dairy producers.
Among its investments and food processing facilities is a newly commissioned (2018) state-of-the-art tomato processing plant located near Bulawayo, capable of processing 150 tons of tomatoes per day for tomato paste that is both sold locally and exported. Hamara's current export orders are US $54 million for tomato paste, along with US$120 million for pecans, and over US$50 million in other horticulture commodities.

Figure 2. Generalized Agricultural Value Chain Model (Norton 2014: 2)



In its poultry operations Hamara has broiler and layer incubators that can accommodate over 160,000 eggs at time, with further capacity expansion currently underway. The incubators provide day-old chicks to farmers to ensure an ongoing supply of eggs and poultry products under the Hamara brand in its retail stores. In its supply of inputs to local farmers, Hamara operates a feed mill to produce commercial animal feed that is sold at its Hamara Farmer stores.

In retail grocery, in addition to its long established Harmara Egg brand in Matabeleland, Hamara markets dairy products such as yoghurt, butter, and fresh milked produced by Hamara Dairy. In its own store outlets, Harmara caters to the low-income market and offers a wide range of staple goods such as mealie meal, rice, and sugar, as well as fruits and vegetables.

The scenario described above for the Hamara is therefore one that includes value chain components of inputs (seeds, day-old chicks, animal feed, etc), post-production handling and processing (tomato processing, egg and dairy processing, etc) and marketing through product branding and retail outlets. In addition, as noted earlier, embedded in a value chain such as this are technology innovations and applications, financing arrangements, and payment systems.

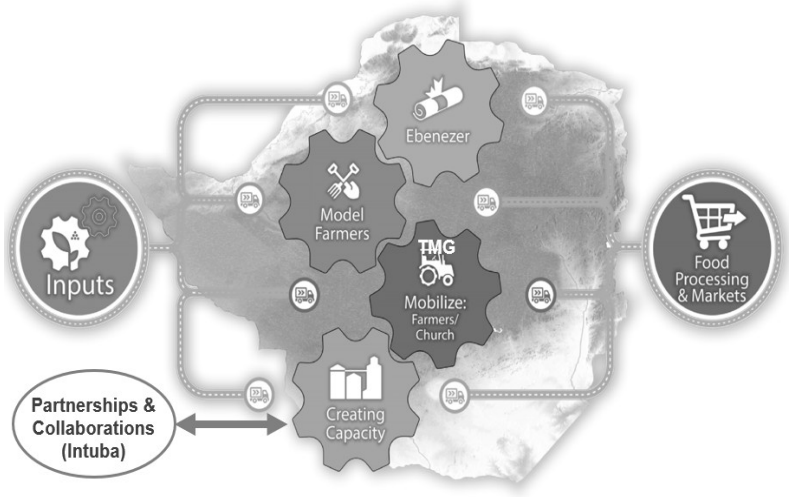
Smallholder Farmers. A central component of the value chain for agriculture is the agriculture production itself. In the case of Hamara, this includes the production of tomatoes, eggs, milk, and other horticulture and livestock products. For such production, Hamara relies on heavilyon output from small-scale farmers, and has therefore been an ardent proponent of unlocking the productive power of these farmers.

To that end, Hamara has established an "out-grower" model farmer scheme which enables smallholder farmers though a staged progression of skills, experience, and capacity development to not only feed their families, but also sell their output. In essence they become contract farmers, and with the profits they earn, are able to develop a sustainable agriculture business.

A rendition of the value chain model that reflects Hamara's approach to engaging smallholder farmers through its out-grower model farmer program is presented in Figure 3.

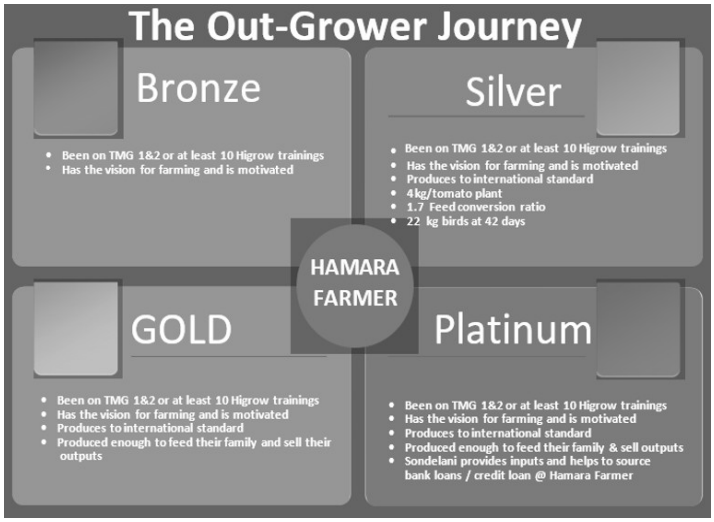
The Hamara "Out-Grower Journey" presented in Figure 4 consists of four levels; these are designated, "Bronze", "Silver", "Gold" and "Platinum". Differentiating criteria among levels relate to a farmer's ability to produce to international standards, along the attainment of certain volume and efficiency thresholds. The form of financial assistance available also depends on a farmer's achievement level. For the Bronze, Silver, and Gold levels, financial assistance is in the form of startup inputs (chicks, feed, medications, etc for poultry production) that are loaned to smallholder farmers under contract. Upon completion, Hamara receives repayment of the loan in-kind taken from production, with the remainder as profit to farmer. For Platinum level farmers, assistance is provided in securing loans from banks and other financial institutions with production off-take guarantees by Hamara to help secure the loan.

Figure 3. Hamara Agricultural Value Chain Model (Hamara, 2019: 4)



Training and Partnerships. Fundamental to Hamara's business model is equipping local smallholder farmers with the necessary knowledge and skills and material inputs to become productive, effective, and profitable in their farming operations. Fulfilling these aims has entailed three strategies that are depicted in the value chain model in Figure 3; these being: 1) The Hamara's Ebenezer Training Center; 2) Partnering with a local church initiative called Turning Matabeleland Green (TMG); and 3) Collaborating with local non-profits, particularly those such as Intuba which are focused on providing rural communities with access to clean water and solar pumping capability, and implementing water efficient drip irrigation and raised bed farming methods. A summary of each of these three strategies to develop local capacity and promote sustainable smallholder farming operations follows below.

Figure 4. Hamara Out-Grower Model Farmer Scheme (Hamara, 2019: 8)



Ebenezer Training Center. Closely associated with Hamara's model farmer program is the Ebenezer Training Center operated by Harmara near Matopos, approximately 50 km south of Bulawayo. The training center applies an apprentice approach to train and equip young people to become model farmers in their home districts, and thereby lead their communities in using their land more productively.

The full-time residential apprenticeship program, with courses ranging from three months to two years for a two-year diploma, combines classroom teaching with practical fieldwork experience on various on-site agriculture plots for maize, tomatoes, pecans, and other crops, along with poultry and dairy projects. Each apprentice learns not only about small-scale agriculture, but also has the opportunity to partner in running an agricultural business. Apprentices earn financial graduation rewards based on their harvests. These rewards are banked in individual seed capital accounts and released to the apprentices upon graduation (Hamara, 2019: 7).

Turning Matabeleland Green (TMG). TMG is a Christian church initiative that was founded on the belief that the church needs to be involved in the wellbeing of the people of Zimbabwe (Hamara, 2019: 6). Hamara has partnered with TMG in Matabeleland (and also in the provinces of Manicaland and Mashonaland) to provide training to rural farmers. Unlike the Ebenezer program, which is an apprenticeship program designed for aspiring farmers, TMG provides outreach training for existing rural farmers. Since 2013 TMG has trained over 13,000 farmers to help create a new vision for their communities ("envisioning visits") and provide them with business skills like cashflow planning and business plan development. The practicalities of growing crops such as tomatoes or raising chickens that meet the standards required by Hamara are also an essential part of TMG's training program.

In 2019 TMG trained 938 farmers over the course of 30 training sessions, compared to only 10 sessions in 2018, despite increasingly challenging economic conditions in Zimbabwe. TMG also conducted 16 "envisioning visits" to assist communities in defining how they can improve farming practices and participate in the Harmara model farmer program (Netha, 2019: 2).

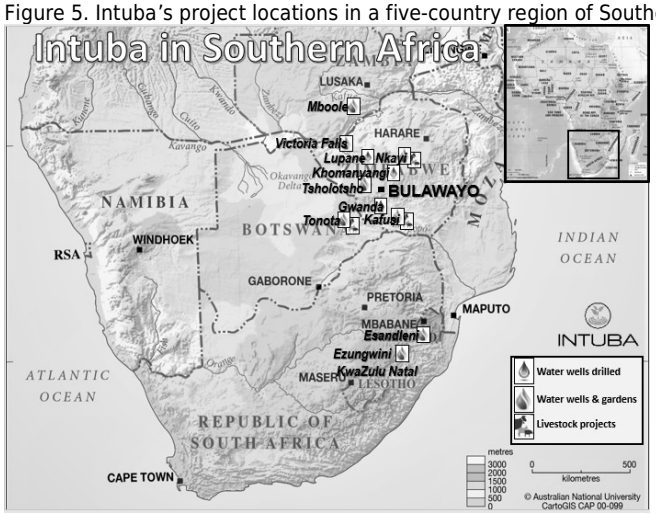
In 2020 TMG anticipates training some 1,100 farmers with fees at the higher end of what was charged in 2019 when fees were increased from US$ 34 to over US$ 100 per farmer. In 2020 the projected fee is $135 to train one farmer to qualify as a Bronze farmer in the Hamara model farmer program (Netha, 2019: 7)

Intuba sustainable project in water, solar, and agriculture. Hamara's provision of market access for small-scale farmers, and its model farmer program, facilitated by its Ebenezer training center and partnership with TMG's training program have given cause for hope and already financially benefited significant numbers of smallholder famers in southern Zimbabwe. While commendable, the overall approach presupposes to a certain extent the availability of water and energy, and particularly in areas of water scarcity, technology or methodologies to conserve water so as to allow farmers to produce sufficient volumes to feed their families and sell to Hamara.

Since the Hamara value chain model is predicated on such inputs (in addition to the seeds, fertilizer, day-old chicks, etc, and know-how that Hamara and TMG provide), additional collaboration can serve to ensure sustainable business operation for smallholder farmers.

A non-profit organization collaborating with Hamara and TMG in meeting these input needs in Zimbabwe is Intuba (meaning "gateway 'in the local Zulu language). Intuba is a registered U.S. 501(c)3 non-profit, but also has in-country representation and project presence in the five-county region of Zambia, Zimbabwe, Botswana, South Africa, and Eswatini--formerly Swaziland (Figure 5). The Intuba organization (registered as a Trust in Zimbabwe) has applied an approach that not only helps meet basic needs in water and food, but also creates opportunities to scale-up production for business development and economic growth.

Figure 5. Intuba's project locations in a five-country region of Southern Africa



Although highly desirable to have formal market access as Hamara provides, many communities beyond the reach of this opportunity in Zimbabwe (approximately 200 km from Bulawayo), or in neighboring countries, are generally reliant on local markets and selling produce to individual buyers such as nearby hotels and restaurants. In such cases, the goal of Intuba, once basic needs with improved water and food supply have been met, is to increase agriculture productivity to the point where a crop surplus can be sold for a profit. The ultimate aim is therefore to make small holder farming sustainable in all the rural communities where Intuba has projects.

Water supply. Irrespective of the market opportunities available, a fundamental and urgent need in many of the 30 communities in the five-country region where Intuba has projects is reliable access to water. This often means access to safe drinking water, but in many instances unreliable sources of water – especially surface water for irrigation to supplement inadequate rainfall, limits attempt to improve food production.

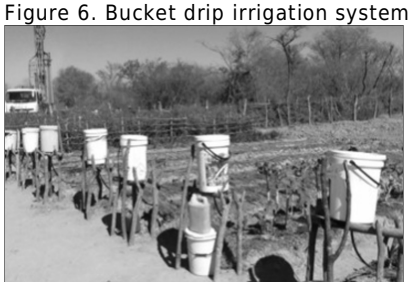
Reliable and affordable access to water is a constant challenge for smallholder farmers across Africa as three-quarters of countries, including those Intuba serves, are located in arid and semi-arid regions. This uncertainty in sufficient water for crops is the principal constraint on increased agricultural productivity in much of sub-Sahara Africa (ASFG, 2013: 28). In addition, since women are a major labor force in agriculture, and are most often tasked with collecting water--spending hours per week doing so, lack of access to water adversely impacts farm productivity and output (ASFG, 2013: 29). These impacts are in addition to the human toll on women's health and the lives of those they care for.

Intuba's approach in many communities is therefore first drilling a new water well in order to meet basic water needs. Since 2013, Intuba has drilled 15 new wells with a 75% success rate in encountering sustainable aquifers. Well depths are typically in the range of 80-100 meters. In 2019 two successful wells were drilled in Zimbabwe (in the communities of Khomayangi and Lupane), and as with previous wells in other communities, these wells have had a transformative impact in improving the health and overall economic outlook in the community (Mthombeni, 2019: 1).

In 2020, at least two new wells are planned in other communities. In order to reduce the risk of an unsuccessful well, more advanced hydrogeophysical survey methods are proposed for a joint study with the physics department at the National University of Science and Technology in Bulawayo.

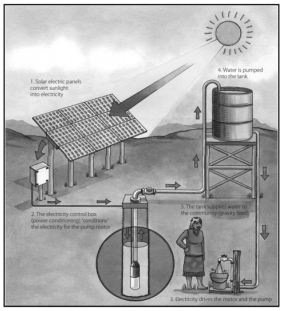
Drip irrigation and raised bed farming. A further source of optimism in communities where a reliable water supply has been established is the opportunity to improve agricultural productivity and food supply using drip irrigation. Because of the water scarcity in project areas, and the need for irrigation, yet with the inability of rural communities, most without access to power, to install or finance any high-tech systems, Intuba has pioneered the use of a simple and inexpensive, yet highly effective gravity-fed drip bucket irrigation system. The main components are 20-liter (approximately 5-gallon) buckets held on supports one meter or more above ground level to provide enough pressure to feed 50-meter long drip lines (Figure 6). The system has been implemented in all project areas to date and has enabled the construction of community gardens to provide much needed sources of nutrition to the members of the community

Figure 6. Bucket drip irrigation system



The use of drip irrigation to enable water conservation and expand food production has been complemented by the introduction of raised bed farming methods. While relatively simple to construct-- consisting of an elevated mound of soil supported by rock, stones, or concrete blocks and topped with 2-3 inches of mulch, raised beds aid water retention and facilitate the placement of drip lines such that water is delivered only to plant locations (Figure 7). Since 2013 Intuba has conducted over 40 workshops, and trained hundreds of community leaders and farmers in the use of bucket drip irrigation and raised bed farming techniques.

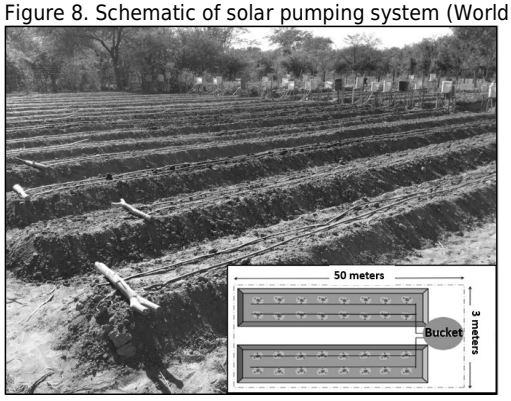
Figure 7. Raised bed gardening with drip lines run along the top of the beds



Solar pumping. While improved access to a reliable water supply from borehole drilling, coupled with the adoption of bucket drip irrigation and raised bed farming methods, have benefited several of Intuba's project locations, both in terms of health benefits and agricultural productivity, the expansion of community gardens has been limited by the need to hand-pump and hand-carry water to drip buckets. A single well location also often requires residents (mostly women) to hand-carry water, in some cases long distances (1-2 km or more), to their households.

In order to reduce the labor involved in pumping water and carrying it long distances, solar pumping is seen as a solution, particularly when a high-yield water well is present, and the community has already established productive gardens. The basic scheme typically involves a downhole submersible pump, powered by solar panels, that pumps water into an elevated storage tank (5,000-10,000 liters in size) to enable gravity feed to distribution lines and water taps in the community (Figure 8). Solar power reduces the need for connection to a grid, which is usually unavailable in rural communities, and can therefore serve as a power supply for other community uses.

Figure 8. Schematic of solar pumping system (World Bank Group, 2018: 9)



Thus far, Intuba has installed solar pumping in two communities in Zimbabwe (Kafusi and Lukampa) where it previously drilled successful boreholes and led these communities in developing successful gardens. In 2020 at least one more community (Dibutibu, near Victoria Falls) with a previously drilled well and existing gardens is targeted for a change from manual to solar pumping.

The availability of a reliable water supply and an expanded water distribution network in a community further enhances the eligibility of a community to become a contract grower as is available with Hamara. In 2019 Intuba sponsored training through TMG for three communities that are in the early stages of becoming contract tomato growers for Hamara's tomato processing plant in Bulawayo. As other communities within geographic reach of Hamara's contract grower arrangement improve their eligibility because of an assured water supply, solar pumping, and productive gardens, Intuba anticipates sponsoring additional training for these communities.

Concluding Remarks

Smallholder agriculture in sub-Sahara Africa has been—and is expected to be, an increasingly important source of food security for a growing urban population in many African countries. Despite their importance, smallholder farms face an array of challenges that stand to thwart realizing their potential. Among the obstacles confronting them are inadequate infrastructure

and public services, a lack of access to water, energy, and other agricultural inputs like seeds and fertilizer, insecurity with land tenure and water rights, and financial constraints due to lack of access to credit and markets.

In order to address a manageable set of such challenges, this paper used a case study of smallholder agriculture in Zimbabwe to illustrate the importance of access to training and partnerships for smallholder farmers, and the pivotal significance of access to markets to ensure their sustainability as a business.

The value chain model involving the Hamara-TMG partnership in Zimbabwe, and the collaboration with Intuba as a non-profit with regional projects in water and agriculture development, illustrated some key points.

Training. In order to achieve sustainability as a business, smallholder famers stand to benefit from education and practical training. This includes learning about farming methods and strategies as well as the principles of agribusiness itself. The apprenticeship program at Hamara's Ebenezer Training Center demonstrates an impactful approach to accomplishing both. The program not only instructs young aspiring farmers in effective farming methods, particularly for crops like tomatoes and livestock like poultry and dairy, which yield much higher returns than lower value crops like maize (AGRA, 2017: 14), but also provides financial incentives in applying business practices for financial rewards. These rewards are released to apprentices upon graduation as seed capital to start their own agricultural business.

The program serves as a model that is recommended to other food and beverage companies, including multinationals who are increasingly recognizing that it is in their interest to engage with smallholder farmers in their value chains (GGI, 2016: 9). Companies will gain not only producers to meet their production needs, but also have a cadre of well-qualified contract growers who conform to their agricultural and business practices.

Hamara's partnership with TMG as its training arm to reach rural smallholder farmers provides an effective approach to instilling standardization in agricultural practices among contract growers, as well as garnering a commitment from them to be relied upon as suppliers of agricultural produce. The project work of Intuba in its guidance and training with water well drilling, solar pumping, drip irrigation and raised bed farming serves to prequalify smallholder farmers in rural communities as contract growers if an opportunity such as with Hamara is available. For communities elsewhere, Intuba's projects improve water and food security and thus increase their potential to achieve economic sustainability.

Partnerships. The value of partnerships is evident in the complementary collaboration described involving Harmara, TMG, and Intuba in Zimbabwe. More broadly, there is consensus among multinational food and beverage companies such as Heineken, Sodexo, and Unilever that integrating smallholder farmers into their value chains and forging partnerships with local small-medium enterprises (SMEs) and governments creates a "win-win-win" situation (CGI, 2016: 10). Smallholder farmers win through increased productivity and access to markets, with SMEs as intermediary beneficiaries in providing local services of food processing, transport, wholesale and retail (AGRA, 2017: 51); companies win by securing local supply; and governments win through support for their agricultural economy (CGI, 2016: 10). Regardless of the scale of company, whether local, national, or multinational, it therefore behooves companies, particularly those in the food and beverage sector, to engage with smallholder farmers and to do so through diverse partnerships.

Access to markets. Among the key challenges that smallholder farmers face is access to markets (AGRA, 2018: 2), and therefore the opportunity to operate as a business. Access to markets ties in closely with financing needs and access to credit for smallholder farmers. Ways to improve smallholder access to markets has been covered extensively in the literature by organizations such as the United Nations Food and Agriculture Organization (FAO), World Bank, and International Labor Organization (ILO).

One particular aspect of the linkage between market access and smallholder credit that has received considerable attention in recent years is private sector-driven agricultural value chain finance, most notably in the form of contract farming and out-grower schemes (ASFG, 2013: 39). In Timor-Leste, for example, 30% of smallholder farmers participating in out-grower schemes increased their income by 14% or more, enabling them to rise above the national poverty line (ILO, 2017: 1).

In Zimbabwe, the "Model Farmer Out-Grower Journey" established by Hamara with its graduated levels of contract farmer qualifications (Bronze, Silver, Gold, and Platinum) exemplifies an innovative approach to enabling smallholder farmers to establish sustainable businesses. In the case of Hamara, farmers enter into a forward agreement for agricultural production to repay the loan which was in the form of inputs (seeds, fertilizer, chicks, etc) or a direct monetary disbursement from lenders that Hamara helped with an offtake agreement.

The out-grower model is not without risk, however, as depressed market conditions for commodities or adverse environmental conditions such as droughts can hinder a farmer's ability to repay (ILO, 2017: 5). There is also the risk of side-selling by smallholder farmers that could prevent them from fulfilling their contractual obligations (CGI, 2016: 11).

The contract farming, out-grower model is, however, seeing rapidly expanding application with documented success stories, and is a recommended approach to be taken advantage of by smallholder farmers when available from companies such as Hamara. Access to training and infrastructure support in the form of transportation and communication further strengthen the use of the out-grower model. Here too, with its transportation and distribution network, Hamara stands as an example of a broader commitment to smallholder farmers.

Further research. This study focused on the case example in Zimbabwe and on a limited range of issues related to smallholder famers and their sustainability. At this early stage of developing sustainable agriculture for smallholder farmers in the study area, there are few glaring inadequacies in the areas of training, partnerships, and market access discussed in this paper. The national economy and the limited funding to support further projects in communities with smallholder farmers who are in need are the main barriers to doing more.

Nonetheless, further research could investigate other factors such as financial services and payment systems, legal and regulatory conditions, government policy, public-private partnerships, and technology that impact smallholder farmers. Also, the geographic scope of study could be expanded to consider other countries in the Southern African region to perform a comparative analysis.

References

African Smallholders Farmers Group (ASFG), 2013, Supporting smallholder farmers in Africa: A framework for an enabling environment, ASFG Report, London, July 2019: 1-71.
https://policy.practicalaction.org/component/dspace/item/supporting-smallholder-farmers-in-africa-a-framework-for-an-enabling-environment accessed Jan. 2020.
Alliance for a Green Revolution in Africa (AGRA), 2017, The business of smallholder agriculture in Sub-Sahara Africa (Issue 5), Agriculture Status Report 2017: 1-180.
https://agra.org/wp-content/uploads/2017/09/Final-AASR-2017-Aug-28.pdf accessed Jan. 2020).
Alliance for a Green Revolution in Africa (AGRA), 2018, Africa's growth lies with smallholder farmers, January 11, 2018: 1-3. https://aga.org/africas-growth-lies-with-smallholder-farmers/ accessed Jan. 2020.
Clinton Global Initiative (CGI), 2016, Engaging smallholder farmers in value chains, CGI Annual Meeting: Turning ideas into action, New York City, September 19-21, 2016: 1-23.
https://www.clintonfoundation.org/sites/default/files/cgi_smallholder_report_final.pdf accessed Jan. 2020.
Ernst, J., 2014, How Africa can feed the world's 9 billion people by 2050, Devex Newsletter, July 17, 2014: 1-3.
https://www.devex.com/news/how-africa-can-help-feed-the-world-s-9-billion-people-in-2050-83897 accessed Jan. 2020.
Golin, D., 2014, Smallholder agriculture in Africa: An overview of and implications, Working Paper, International Institute for Environment and Development (IIED), October 2014: 1-20. https://pubs.iied.org/pdfs/14640IIED.pdf accessed Jan. 2020.
Hamara, 2019, Harmara & TMG 2030 Vision, Unpublished Company Report, December, 2019: 1-18.
International Labor Organization (ILO), 2017, Improving market access for smallholder farmers: What works in out-grower schemes- evidence from Timor-Leste, ILO Issue Brief No. 1, March 2017: 1-5. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/documents/publication/wcms_547157.pdf accessed Jan. 2020.
Mthombeni, R., Intuba Sustainable Projects 2019: End of Year Report, Unpublished Report, December, 2019: 1-3. (accessed Jan. 2020)
Netha, P., TMG Annual Report 2019: Looking back on year of great success, TMG Unpublished Report, December 2019: 1-10.
Norton, R., 2014, Agriculture value chains: A game changer for small holders, Devex Newsletter, July 28, 2014: 1-3.
https://www.devex.com/news/agricultural-value-chains-a-game-changer-for-small-holders-83981 accessed Jan. 2020.
Patton, A., 2014, Linking up for a food-secure world, Devex Newsletter, July 17, 2014: 1-7.
https://www.devex.com/news/linking-up-for-a-food-secure-world-83890 accessed Jan. 2020.
World Bank Group (WBG), 2018, Solar pumping: The basics, World Bank Report: 1-32.
http://documents.worldbank.org/curated/en/880931517231654485/pdf/123018-WP-P159391-PUBLIC.pdf accessed Jan. 2020.

ANALYSIS OF SUSTAINABLE COMMUNITY DEVELOPMENT: A CASE STUDY OF A COLLEGE TOWN

Yasmine Ben Miloud, Eastern Illinois University, Charleston, Illinois, USA
Nichole Hugo, Eastern Illinois University, Charleston, Illinois, USA

Abstract

When thinking of communities 'solutions to development, recruiting industries and entrepreneurial initiatives are strong answers. Industry recruitment is the traditional approach, but not always the best solution. Self-development by relying on community involvement to support change and solve problems may show better results. The purpose of this paper is to examine ways for community self-development in a college town. A qualitative study based on interview with community members was utilized to collect perspectives for how the community could grow in a sustainable manner. Recommendations focus on the improvement of recreational activities and increasing tourism opportunities. The Calgary model of competitiveness reveals a need for substantial effort to support systems to enhance nature-based tourism though.

Keywords: American college town, sustainable development, community involvement, Calgary model of competitiveness

Introduction

Seasonality is a consistent struggle many communities face, especially for those who rely on tourism dollars. This can be particularly difficult for an area that has an influx of people, such as a university town. Charleston, Illinois is home to Eastern Illinois University, which is a small rural community of an estimated 17,790 household residents (Suburban Stats, 2020). The university had 7,526 registered students in the Fall 2019 semester, although not all these students live in Charleston, as some commute or take all online classes (Effingham Radio, 2019). Not only do the students add to the economy of the community by spending money on everyday purchases, but events at the university also bring in additional tourists to the area.

Figure 1: Two different residential neighborhoods in Charleston (Ben Miloud, 2020)

Over the past decade, EIU experienced a decrease in enrollment which impacted the economic activity of the town and created a need to compensate for this loss of population. Moreover, when summer comes and the students leave, businesses have a significant drop in revenue generation.

A study on small towns in the US found that long-term community development approaches, as opposed to short term for economic gains, were more successful overall (Lambe, 2008). Small towns with recreation or an abundance of natural assets, historic downtowns, or heritage assets near a college campus, adjacent to a metropolitan area, or near an interstate highway have been studied to see how these attributes benefit a community. Charleston, Illinois has surrounding natural areas, nearby historic areas, and a college campus, but is 8 miles from the closest major interstate. Moreover, Charleston holds a vision of "a culturally rich community, characterized by a safe environment, with active citizens, committed to excellent educational institutions, a growing and diverse tax base, and a collaborative local economy that provides opportunities for all citizens, residents and visitors" (Charleston Comprehensive Plan, 2009, p.8). This study investigated tourism as a solution for revitalizing the economic activity of the town in respect to the city vision, the city assets, and the community willingness.

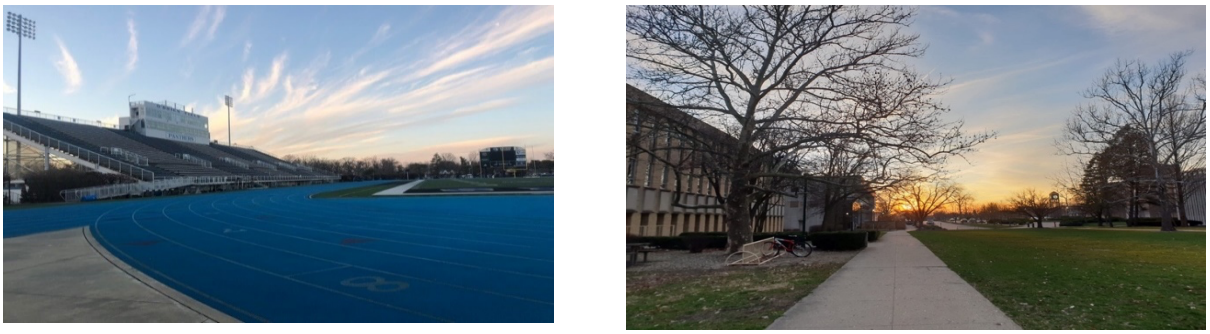


Figure 2: Eastern Illinois University Campus. Ben Miloud. March 2020

The upper left picture represents the Old Main building, one the first buildings at EIU. The upper right is a picture of the pond, which is located by the recreation center and nearby the athletics field in the down left picture. The lower right picture is, Klehm Hall, which is a building on campus

Relevant Literature

Previous studies have investigated different approaches to community development (Summers, & Branch, 1984; and Flora, 2004), best practices for ensuring community sustainable development (Flint, 2013; the American Planning Association, 2015), community involvement drivers to solve problems and key attributes for community attachment (Theodori, 2004; The Knight Foundation 2015). While these studies have explored various aspects of sustainable community development, literature is lacking on this type of development within rural college towns. A study in Bangkok, Thailand on the sustainable development of a college town sheds light on the challenges associated with urban areas, but smaller college towns that are more isolated have different issues to focus on (Iamtrakul & Raungratanaamporn, 2015). However, sustainable development of any other college towns appears to be missing in academic research. Related studies have looked at various other kinds of community development though.

Summers and Branch (1984) studies showed that industry contribution to economic prosperity is not systemic and applicable to all communities. In most cases, citizens receive small to no benefits, concluding that industrial development is not a solution for all rural communities. Flora (1997) studied entrepreneurial and social infrastructure in nonmetropolitan US concluding that the key for successful community based economic development is rather civic than governmental. The American Planning Association has established best practices for sustaining places from planning perspective, Flint (2013) and have proposed several practices to engage residents, businesses, governments, institutions for a sustainable community development (SCD) as follows:

- Civic engagement: participation in decision-making
- Use of local resources: workforce, energy, and materials
- Accessibility to transportation and information within and outside the community
- Quality of life: improving a sense of fulfillment in life
- Public safety: improves the community sense of security
- Education: supports learning and skill development for people of all ages
- Community history: respect the values, traditions of the area
- Community identity: help citizens feel a sense of belonging and commitment
- Neighborliness: support relationships and interactions

Sustainable community development is a democratic and transparent approach focused on community stakeholder communication. It promotes innovation and economic diversity and is continually adjusting to meet social and economic needs of its community while preserving the environment (Flint, 2013).

Theodori (2004) investigated the relationship between community attachment, satisfaction, and action to solve problems and concluded that community satisfaction does not affect community action. However, community attachment does positively affect problem solving within the community. In that regard, the Knight Foundation studied 26 communities across the United States interviewing nearly 14,000 people yearly for 3 years, to define the drivers of community attachment in 10 domains such as infrastructure, local economy, safety, and education. The results showed that the main drivers to community attachment were aesthetics, openness, and social offerings.

In this paper, an inclusive community approach using interviews was used to identify the degree of attachment and drivers to this attachment, the problems and the weaknesses that needs to be addressed, the strengths that needs to be embraced, and creative ideas for tackling threats and growing sustainably.

Method and Analysis

The case study is a rural American college town of a population of roughly 18,000 in Charleston, Illinois. This American college town in the Midwest of the USA and is home to Eastern Illinois University (EIU). A qualitative study based on face to face interviews was the mean of collecting the data in this research.

Population. Different segments of the community of Charleston were subject to this research to have a full image of the city. In total 40 interviews were conducted with 3 groups: community members, EIU student and city officials. Community members, of 18 to 80 years old were contacted using snowball sampling to get recommendations for other community residents that have had strong ties to the community. As a potential future resident with a fresh perspective and less than 4 years living in the city, EIU students, typically of 18 to 24 years old of all ethnicities, nationalities, and gender were as well interviewed. Students were chosen using convenience sampling through student organizations and classes. City of Charleston officials, of 30 years old and above, were participants for this research. These include people that participated in the elaboration of the comprehensive plan and/or the city councils' members. .

Interview questions. In this study, questions were formulated differently for each group. The study examined the macro perspective of the town through city officials by focusing on the strengths, weaknesses, opportunities, and threats of the community, and identifying communication channels and community involvement expectations. Samples of the types of questions asked during the interview include: What makes Charleston an attractive city to be living in? What are the areas of improvement that the city of Charleston needs to work on? What are the priorities of the city of Charleston in addressing these challenges? How could the community help the city of Charleston reach its full potential?

For students, the study tried to identify the strengths and weakness of Charleston, likelihood, and reasons for students to stay after graduation, and drivers encouraging their stay. Among the interview questions were: What do you like most about Charleston? What do you dislike about your life in Charleston? How likely are you to stay in Charleston after graduation? What kind of changes would encourage you to stay after graduation in Charleston?

With the rest of the community members the study investigated community attachment and involvement, communication with the local government and improvement priorities asking: What are you most proud of in your community? Do you know what are the city development plans? If you were part of the city planning committee, what would be your development priorities? How can you contribute to sustainable development in Charleston?

Analysis. In addition to analyzing the transcripts based on deductive coding, previous reports for the town were compared in this study. The Calgary model was used as a framework to guide the analysis of the information gathered from the interviews to analyze the competitiveness of Charleston as an attractive destination to visit.

Results

Based on the interviews, EIU appears to be a strength to the prosperity of the town, it is a source of diversity and jobs. When EIU enrollment goes up, the economy of the town goes up and vice versa. This makes it a threat as well. Whenever the enrollment is down, the local economy goes down too. Actions to limit the effect of the enrollment on the economy needs to be taken. Communication is an obvious weakness. Most community members do not know how to get reliable and official information. Hearsay is the major source of information. People ignore the existence of plans for the community and what they enclose. They do not know of proper channels to get involved either.

While Charleston central geolocation stood out as a strength among officials and other community members for its easy accessibility to bigger cities such as Champaign (IL), Saint Louis and Indianapolis. Transportation is identified as a weakness among the student population for lacking access to public transportation to go out of town.

When looking at Charleston from a position of drivers to attachment, the community is perceived as open, accepting of all types of diversity, and social interactions are good but needs attention. While many community members say loving their neighbors and qualify Charleston as tight knit community, others that have been living here for longer notice that people tent to interact less. Beautification was frequently mentioned when asked about priorities, mainly because of abandoned areas and empty store fronts, like the old mart and street cables.

Tourism is considered as an opportunity for economic growth by most interviewed community members. In fact, the tourism office estimation on events attendance summarized in Table 1, shows that EIU events attract more visitors than non-EIU ones. The most popular events that are not college related, are 4th of July fireworks, Christmas in the heart of Charleston and the airshow that probably gather the current residents rather than out-of-towners. Aside from these events, Charleston attracted visitors through the Softball State Tournament, "Tour de Charleston" marathon, "The Candy Cross Bike Race", and "The Muse Fest".

Table 1: Popular events in Charleston

Event	Location	Month	Average Attendance 2018, 2019
IHSA Track Meets	EIU	May	29,000
Fireworks	Coles Co Airport	July	21,000
EIU Graduations	EIU	May	16,175
Red, White & Blue Days	Morton Park	July	11,000
Air Show 2018	Coles Co. Airport	August	10,000
NSA South State Tournament	Ne-Co Fields	June	5,000
Christmas in the Heart of Charleston	Square	December	4,350

The estimation of the attendance per month for events, shown in the Figure 6 below, reveal that the summer season attract more visitors independently from EIU.

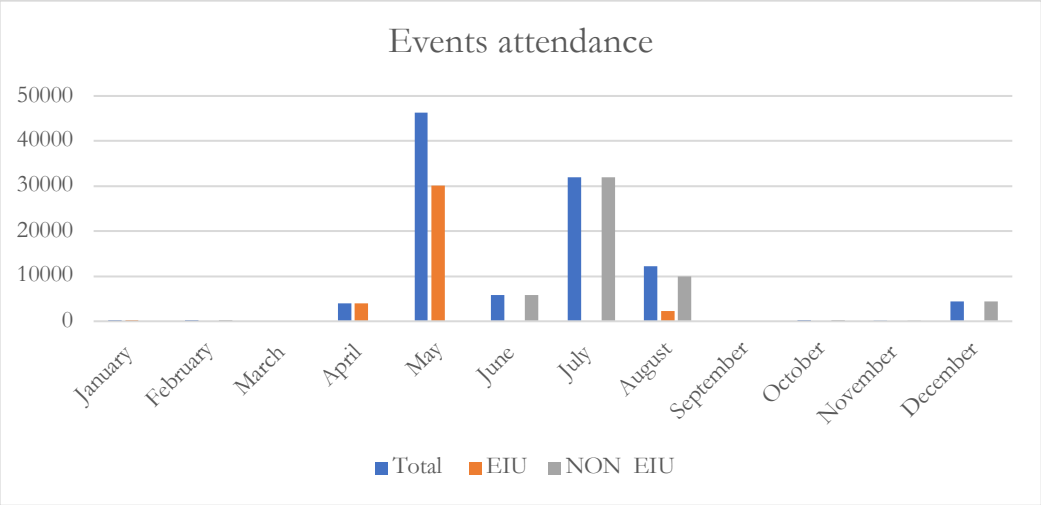


Figure 3: An estimation of the number of visitors per month. Charleston Tourism Office, 2020

The Illinois Institute for Rural Affairs conducted a research on small town tourism and studied 40 towns out of a 100 that are considered successful small towns (Harshbarger, 2012). The analysis considered demographics, reasons why people go there, physical structure of the city such as restaurants, wineries, art performances and so on, activities that created "vibe" for tourists, housing and lodging facilities and the presence of a college. The study revealed that the three most important attractions for tourism in small town (Figure 4) are:

- Water with 40% of the towns visited for their location on lakes or rivers such as Ephraim, Wisconsin.
- Art is ranked second with 38 towns declaring that art add an important dimension to tourism appeal visitors such as Hannibal, Missouri.
- Scenery encouraging people to bike and hike through parks and trails.

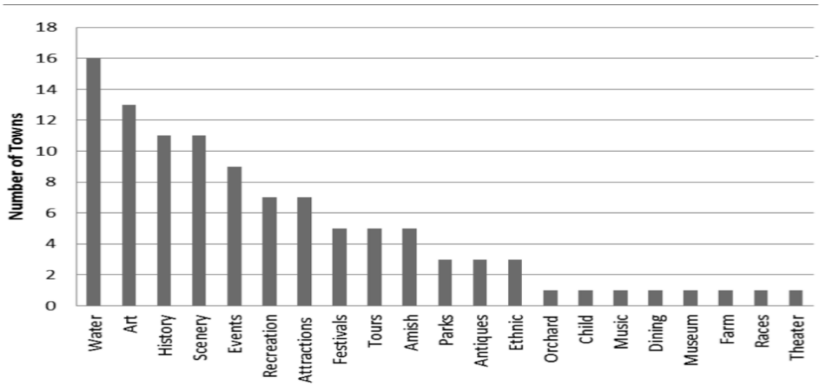


Figure 4: Reasons for tourism in 40 rural small towns (Harshbarger, 2012)

When looking for the reasons that are bringing visitors today to Charleston, art and sport seem to be the answer, however Charleston holds the three top ranked attributes needed to attract more visitors. It has the water proximity, the art, and the scenery. The city has many facilities dedicated to art such as Doudna Fine Art Center, Tarble Art Center, Charlestown Community Theater, and Charleston Alley Theater (Figures 5 -6).

A bigger effort and focus could make the city an attractive destination for tourists, by building on current tourism practices to revitalize the economy and will expand the scope of activities available in town. As the Charleston tourism identity grows, more entrepreneurial initiatives will initiate in that regards, such as bed and breakfasts, restaurants, and rental services for biking, canoeing and more. Such development would benefit the university enrollment as well, students will have more activities and more job opportunities which might encourage them to stay after graduation.

Charleston could become a weekend getaway destination that the nearby city residents could enjoy anytime of the year, but especially in summer. It would be the place in which they get away from the city hustle and enjoy a slow-paced weekend, rent bikes to get everywhere around town, enjoy the lake trails, go fishing or canoeing in the lake, enjoy homestyle dishes, read books and enjoy art exhibit and performances.

Figure 5: Doudna Fine Art Center. EIU. 2020

Figure 6: Exhibit at Tarble Art Center. Verner Johnson. 2020

There are various parks in town (Figure 7). Lake Charleston is the biggest park in town. It is possible to go fishing, bird and butterflies watching, hiking in the trails, and picnicking there (Figure 8).

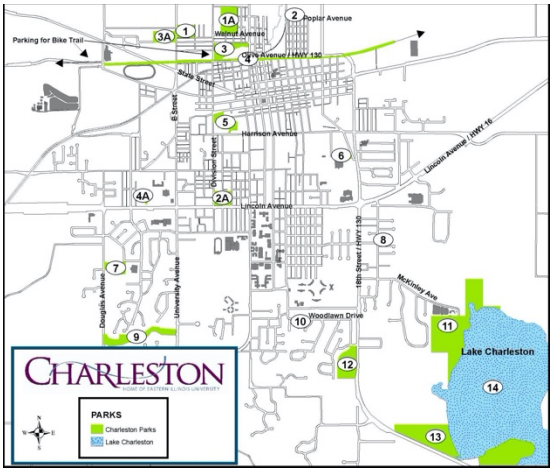


Figure 7: The number of parks available in Charleston. Comprehensive Plan. 2020

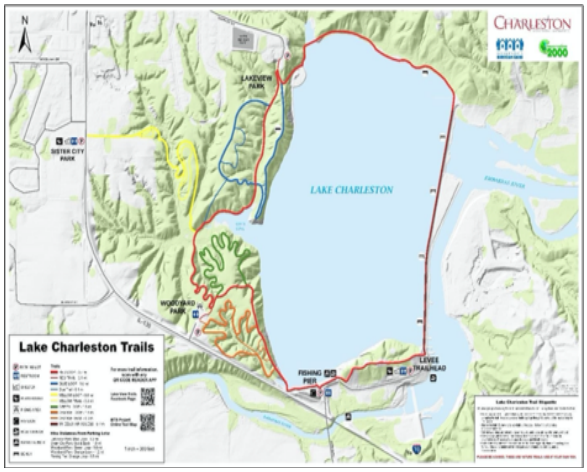


Figure 8: Lake Charleston trails. Comprehensive Plan. 2020

Overall, nature-based tourism can provide opportunities to revitalize the economy of Charleston and the question is what is needed for it to prosper. Nature based tourism requires management to maintain the attractiveness of the town and a steady profit. In fact, destination attractions are recognized as an important factor of tourism destination competition (Richie & Crouch, 1993). The Calgary model of competitiveness in tourism recognizes the relations between visitor experience, different level of quality and prices. When evaluated according to the Calgary model (Table 2), the tourism sector of Charleston presents a lot of weaknesses. It shows that more efforts need to be established in terms of marketing, alliances, human and financial resources, services to make it competitive. The Calgary model does not encompass the environmental quality, yet it is a major factor of attractiveness in environmental tourism (Tschurtschenthaler, 1986). Proper management of the environment is indispensable to maintain the quality of the scenery and thus the attractiveness of the town. Improvements to the Calgary model for future research should include identifying specific environmental and cultural aspects of the area, as these components are essential to sustaining a destination.

Table 2: Charleston competitiveness analysis according to the Calgary model

Destination Appeal	Destination Management	Destination Organization	Destination Information	Destination Efficiency
Attractions The scenery: *Lake *Parks *Hiking trails *Bike paths	Management The tourism office	Management organization Do not exist	Internal management information system Do not exist	Integrity of experience Peaceful town with proximity to nature

Deterrents No tourism services: * Activities: canoe, bike rental * Limited accommodation * Limited restaurant options	Marketing Limited marketing effort: * Lack of advertisement * No social media presence * No independent website for tourism activities	Alliance No strategic alliance to attract tourists	Research Capabilities: Limited resources and research capabilities available	Productivity No estimated profit

Conclusion

The dependence of Charleston to Eastern Illinois University is perceived as a threat by the community, which created the need for an additional economic activity that would mitigate this threat and create new opportunities to thrive. Tourism seem to be an appropriate alternative as many assets in the community are already in place to facilitate an increased awareness of environmental tourism in the area. The town holds most other tourism assets such as its architecture, history, and art culture. Moreover, the most successful attractions in touristy small towns are all present in Charleston such as water proximity, art, and scenery. Although, tourism in Charleston has great potential, it presents a lot of weaknesses as it is today, when evaluated according to the Calgary model of competitiveness, such as a lack of marketing, alliances and partnerships, and limited focus on research. The city, in collaboration with community members and businesses, would need to dedicate substantial effort towards focusing on tourism and increasing its presence through marketing. A whole new market for entrepreneurs in town could emerge, from rental services for recreation, restaurants, bed and breakfast, airport shuttles and other transportation means that are currently lacking. Such self-community development is likely to strengthen the community ties and preserve the city attributes. Future research could explore the feasibility of such initiative from a budgetary standpoint.

Reference

Blakely, E.J., & Bradshaw, T.K. (2002). Planning local economic development: Theory and practice (3rd ed). Thousand Oaks, Canada. Sage.

Charleston Comprehensive Plan 2020. (2020). Retrieved on May 21, 2020 from https://www.charlestonillinois.org/vertical/sites/%7B48D19AF4-26A9-444F-A5B9-99631D71D5F2%7D/uploads/1._Comprehensive_Plan_Update_2020_(Final_DRAFT)_(05.14.2020).pdf

Effingham Radio. (September 5, 2019). Eastern Illinois University enrollment continues to climb. Effingham Radio. Retrieved on March 29, 2020 from https://www.effinghamradio.com/2019/09/05/eastern-illinois-university-enrollment-continues-to-climb/

Flint, R.W. (2013). Practice of Sustainable Community Development: A Participatory Framework for Change. New York: Springer Science and Business media. DOI 10.1007/978-1-4614-5100-6_1

Flora, J.L, Sharp, J.S, Flora C.B, and Newlon, B. (1997). Entrepreneurial social infrastructure and locally initiated economic development. The Sociological Quarterly, 38, 623-645.

Flora, C.B. (2004). Community dynamics and social capital. Agroecosystems Analysis Agronomy Monograph.

Flora, C.B. (2008). Community capitals. Components of Rural Communities: The Community Capital. 157–160.

Godschalk D.R, & Rouse D.C. (2015). Sustaining places: Best practices for comprehensive plans. Chicago, IL: American Planning Association.

Knight Foundation Soul of the Community. (2013). What attaches people to their communities? Retrieved from http://www.soulofthecommunity.org

Lambe, W. (2008). Small towns and big ideas: Case studies in community economic development. Raleigh: University of North Carolina School of Government, North Carolina Rural Economic Development Center.

Lamtrakul, P., & Raungratanaamporn, I. S. (2015). Sustainable campus town development in suburban area of Bangkok, Thailand. International Journal of Building, Urban, Interior and Landscape Technology; BUILT, 6, 39-52.

Ritchie, J. R. B., & Crouch, G. I. (1993). Competitiveness in international tourism * a framework for understanding and analysis. Proceedings of the association internationale d'experts scientifiques du tourisme: Vol. 35. Competitiveness of Long-Haul tourist destinations (pp. 23}71). St. Gallen: Niedermann Druck.

Suburban Stats. (2020). Current Charleston, Illinois population, demographics and stats in 2020, 2019. Suburban Stats. Retrieved from on March 23, 2020 from https://suburbanstats.org/population/illinois/how-many-people-live-in-charleston

Summers G, & Branch, K. (1984). Economic development and community social change. Annual Review of Sociology, 19. 141–66

Theodori, G.L. (2004). Community attachment, satisfaction and action. Journal of the Community Development Society. 35. DOI: 10.1080/15575330409490133

Tschurtschenthaler, P. (1986). Das Landschaftsproblem im Fremdenverkehr dargestellt anhand der Situation des Alpenraums. Bern: Paul Haupt.

A FRAMEWORK FOR QUANTIFYING THE TRIPLE BOTTOM LINE USING THE BALANCED SCORECARD

Grace Wilken, Eastern Illinois University, Charleston, Illinois, USA

Abstract
Sustainability is expressed in business terms as the triple bottom line (TBL)—considering economic, environmental, and societal well-being. Increased sustainability can lead to competitive advantages, higher customer satisfaction, and increased financial performance. It is becoming increasingly important that companies work towards sustainability in their corporate strategy by addressing their societal and environmental impacts. Despite growing popularity and literature on the subject, there is not yet a consistent, user-friendly framework for measuring the TBL.There are many challenges in measuring the TBL, including indirect impacts of a company (beyond its supply chain) and ambiguity of environmental and social impacts. The framework proposed in this paper expands the balanced scorecard (BSC) to include all three aspects of the TBL in a manner that is both conceptual and quantifiable. This preliminary framework requires further testing and research to be fully developed and implemented. However, it represents another step towards measuring the TBL to incorporate sustainability into strategic management.

Introduction

Strategic management is an essential part of any business and requires many strategic decisions. Good decision-making requires good information. Therefore, it is vital that a company can monitor and measure various aspects of a business to provide wholistic and useful business intelligence. Performance measures are essential to business assessment, decision-making, and forecasting. There are many commonly used methods to measure key performance indicators (KPIs) of a business. Some of these methods are the income state which shows revenue minus costs to equal profits, or the balance sheet which shows assets equaling liabilities plus equity. There are many other financial ratios that can be used as a comparative benchmark across industries. The balanced scorecard is another useful tool that assesses multiple non-financial leading measures which result in financial success.

However, these measures only assess the economic performance of a business and fail to address environmental or social impacts. Concern for the wellbeing of the environment and society is becoming more incorporated into business practices and expectations. The word “sustainability” has increasing popularity in the business context. The literal meaning is to sustain—to be able to continue into the future. However, the modern, practical definition of sustainability is something benefiting society, the environment, and the economy (also called the pillars of sustainability or the triple bottom line). This paper will use the latter definition—benefiting all three pillars of sustainability to create long-term success through societal, environmental, and economic wellbeing.

Sustainability can lead to a strategic competitive advantage for a company. Cantele and Zardini (2018) conducted a study of 348 Italian small and medium manufacturing facilities and found that increased sustainability generally led to a greater competitive advantage and ultimately greater financial performance. Walsh and Dodds (2017) found that sustainability led to competitive advantages in the North American hotel industry by encouraging efficiencies, attracting new customers, and environmental differentiation. Kemp, Schot, and Hoogma (1998) suggest that businesses can even use sustainable practices to create a strategic niche in the market and thus a unique competitive advantage.

The idea of sustainability is becoming an important aspect of strategic management and business education. Borland, Ambrosini, Lindergreen, and Vanhamme (2016) suggest that ecological sustainability and strategic management can work together to build dynamic capabilities and innovation. Auderbrand (2010) expresses that sustainability must be taught as an integral part of strategic management, and that this can be achieved by changing the underlying frameworks, worldviews, and metaphors associated with teaching strategic management.

Natural constraints will eventually limit the exponential growth of human civilization during this most recent human-dominated time period, the Anthropocene. The idea of endless growth does not exist in the physical or biological systems in which we operate. Energy is only transferred, not created or destroyed. Modern society has been using fossil fuels (stored organic remains from hundreds of millions of year ago) to surpass the natural energy available on the surface of the planet. Such exponential growth cannot continue indefinitely. It is imperative that we seek more sustainable practices within our economic system if our civilization is to continue into the future.

For the purpose of basic survival and competitive advantage, businesses must incorporate sustainability into strategic planning, business practices, and performance measures. Being able to measure social and environmental impacts, in addition to economic performance, will provide managers with more wholistic information to make well-informed decisions and strategic plans. This paper aims to express the importance of the triple bottom line (TBL) in strategic management and propose a preliminary quantitative framework for measuring sustainability key performance indicators (KPIs) in the triple bottom line balanced scorecard (TBL-BSC).

Theoretical Background

The bottom line is typically used in reference to profits (also called net income). However, the bottom line can also generally refer to any traditional financial performance measures, such as return on assets or net cash flow. The triple bottom line refers to the idea of focusing on social and environmental wellbeing in addition to financial measures. The three pillars of sustainability are economic, social, and environmental impacts—translated into people, planet, and profits. Kenton (2019) further describes it as a company’s social and environmental responsibility, in addition to corporate profit.

There are a few proposed frameworks for measuring the TBL. However, they are theoretical frameworks that require further development before they could be useful in practice. A detailed list of key findings in the literature review can be found in Table 1 of the attachments. These measures can help to quantify the broader impacts on society and the environment, beyond the

traditional economic performance measures. A review by Fakhimi, Mustafee, and Stregioulas (2016) compiles requirements/qualities of various modeling and simulation methods including adaptability, accuracy, and ease of integration into other business measures and operations.

The University of Scranton (2019) suggests that businesses can measure social impacts by median household income, crime per capita, average life expectancy, female labor, average commute time and education levels. The article also recommends using environmental measures of greenhouse gas emissions, fossil fuel consumption, land use, water consumption, changes in land use, solid waste management, use of post-consumer materials, energy use, and hazardous waste generation. Stenzel (2010) recommends that companies use environmental measures of air and water quality, energy use, and waste production. The study suggests social measures of labor practices, community impacts, human rights, and product responsibility. Finally, Stenzel offers economic measures of profits, taxes paid, cash flows, and jobs created.

Other measures are proposed by Kimmet and Boyd (2004). They suggest environmental measures such as material impacts (with life cycle assessment, LCA), energy consumption, building energy footprint, greenhouse gas emissions, use of building footage, (hazardous) waste, and disclosure of non-compliance with environmental regulations. They recommend societal measures of human rights training, alignment with cultural values, employee training and awareness, and adequate insurance coverage. A complete list can be found in Table 1.

The Global Reporting Initiative, GRI (2018) aims to measure the TBL with international expectations. The GRI has developed a guidebook with theoretical metrics for the TBL. They recommend measuring environmental impacts in materials, energy, water use, biodiversity, emissions, waste, regulatory compliance, and supplier environmental assessment. The GRI suggests measuring social impacts by labor relations, employment, occupational health and safety, training and education, rights of indigenous peoples, human rights assessments, child labor, socioeconomic compliance, and more. Other suggested measures can be found in Table 1 of the attachment.

The TBL is especially important in supply chain management, which typically encompasses the majority of material and labor in a business. Godfrey and Manikas (2012) propose that firms integrate the TBL into supplier selection by considering 1) the net present value (NPV), 2) percent change in hazardous waste, 3) percent change in lost workdays, and 4) employee diversity. These values are also weighed against the relative importance to the company selecting the supplier. This simple method introduces additional criteria to the supplier selection process.

Even if social and environmental impacts can be accurately quantified, how could they be integrated into business strategy? Typically, business intelligence needs to be quantified, analyzed, and presented in a logical manner in order to make well-informed strategic decisions. The balanced scorecard was designed to quantify and track non-financial leading measures that result in financial performance.

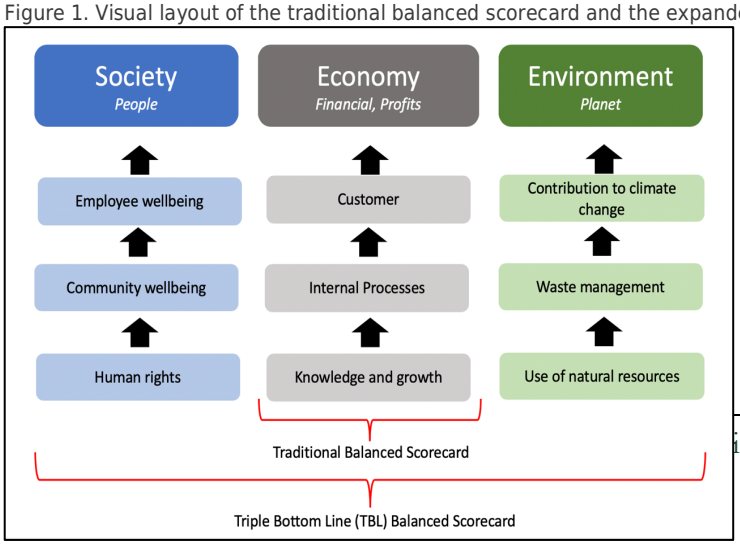
The balanced scorecard, first introduced in 1992 by David Norton and Robert Kaplan, was revolutionary in the sense that it considered non-financial information: learning and growth, internal processes, and customer relations (Lim, 2019). The basic framework remains consistent while the details of the goals and metrics are designed for each business, project, or industry. It took a great deal of testing and revisions before getting to the current accepted model. However, there are still many criticisms of the model—that it lacks quantifiable causal relationships, the metrics are poorly defined, the categories are overgeneralized, and more (Shneiderman, 1999). The balanced scorecard model is a good fit for measuring the TBL since it is already a well-established method for quantifying financial and non-financial factors.

Theory Development and Discussion

However, the frameworks in the previous section do not offer user-friendly, practical measures for the TBL in terms of units or universal standards. This paper proposes a preliminary metric system for the TBL, which includes a framework modeled around the balanced scorecard and includes units of measurement. After creating this model, I discovered research from Hubbard (2009) which suggests using a sustainable balanced scorecard to measure performance in the triple bottom line. Hubbard makes great recommendations that any measurement system must be conceptually based yet simplified to be useful in practice. However, Hubbard's model differs from my proposed model in organization and specific measures. More details on the principles of Hubbard's model can be found in Table 1 of the attachments.

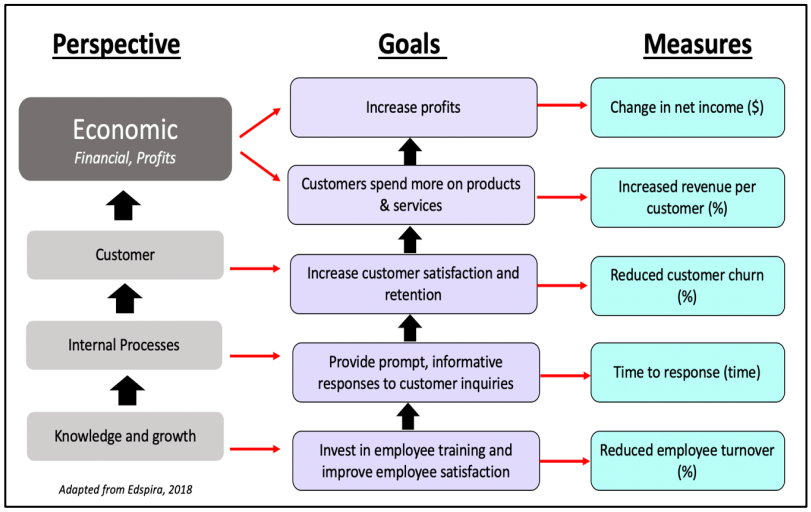
My proposed triple bottom line balanced scorecard (TBL-BSC) focuses on leading measures in all three areas of sustainability (economic, societal, and environmental), also referred to as "people, planet, profits" (Figure 1). This model is still in development, as were the early versions of the traditional balanced scorecard. However, this model offers one of the most measurable and user-friendly frameworks and metrics currently available. It is intended to be a step towards quantifying and widely using the triple bottom line as part of key performance indicators and strategic management.

Figure 1. Visual layout of the traditional balanced scorecard and the expanded, triple bottom line balanced scorecard (TBL-BSC)



The basis for this model is the traditional balanced scorecard, which measures knowledge and growth, internal processes, and customer relations. My model is expanded to include society and the environment, in addition to financial measures. The leading measures, goals, and measurements of each perspective are described in more details through this section.

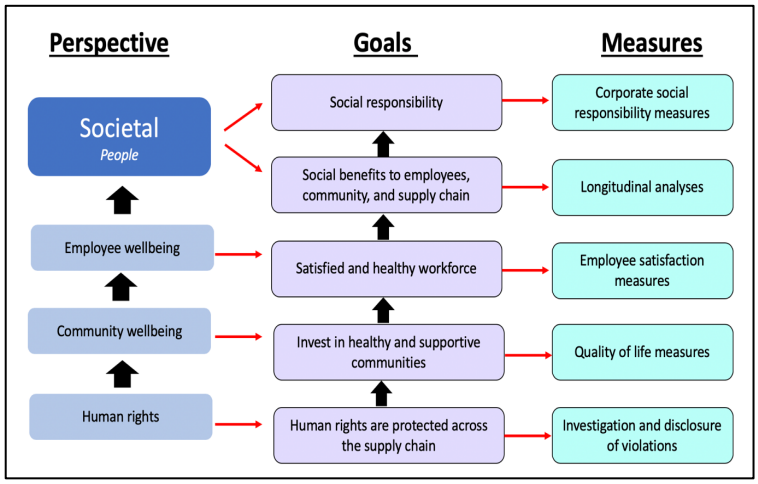
Figure 2. Re-creation and slight adaptation of the visual layout of the financial perspective of the balanced scorecard from Edspira (2018).



The economic perspective model was adapted from Edspira: The Free Business School (2018), which lays out the goals and metrics of the leading measures of the financial perspective. This model was proposed as an example by Edspira (2018) to demonstrate how each company builds the goals and measures depending on their unique needs. The only difference in my model is the slight change to aesthetics and showing a greater distinction in the leading measures versus main perspective (on the far-left column of the diagram). The original model can be found in Figure 1 of the attachments. Larger versions of the proposed models (shown in text) can also be found at the end of the attachments. Many researchers have developed quantifiable measures for the non-financial aspects of the balanced scorecard that lead to economic success.

The social perspective model is an extension of the balanced scorecard, mirroring the Edspira (2018) model but applied to society. In this model, I propose that human rights, community wellbeing, and employee wellbeing are the leading measures that contribute to an organization's social responsibility.

Figure 3. Visual display of details on goals and measures of the societal perspective of the TBL-BSC



The human rights aspect has the goal of protecting human rights across the supply chain. This includes upstream and downstream companies, which can be enforced by contracts and audits. It also includes other social externalities that may be indirectly related to a business. An example would be if a supplier is using child labor or otherwise abusing human rights. This goal can be measured by investigating and disclosing violations of human rights across a supply chain. Many organizations have been regulating and enforcing human rights, including the United Nations and Amnesty International. Some of these groups may

have more specific metrics for human rights. Ensuring human rights across the supply chain is a way to work towards social responsibility, often on a global scale. When human rights are protected, individuals are free to build communities and self-advocate.

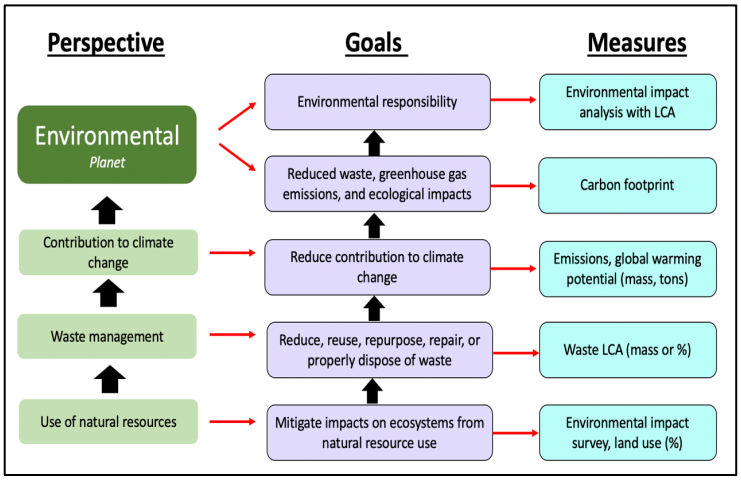
The community wellbeing aspect has the goal of investing in communities to work towards healthy and supportive communities. This is essential to society because humans are social animals that have become interdependent on each other, even in this digital age. Our economic trade system leaves us utterly dependent on each other—most of us could not provide our own food, water, shelter, or clothes by ourselves. Healthy communities promote healthy individuals and resiliency in the face of challenges. The world seems to be shrinking as human population increases, climate changes, sea levels rise, waste accumulates, and natural resources become ever scarcer. It is vital that human community be a priority in our plans for the future. Measurements for community wellbeing are quality of life measures. There are many surveys and metrics that focus on areas such as access to healthcare, education, literacy rate, homelessness, unemployment, crime per capita, average income, income disparity, and general happiness. These measures can be used longitudinally to track changes in a community while a company operates there. The company itself could report measures such as local taxes paid, donations, charity events, sponsorship, and other community contributions.

Employee wellbeing depends on external factors, like community support, and internal factors, such as work environment. The goal of employee wellbeing is to have a satisfied and healthy workforce. This can lead to increased productivity, less missed work, and greater customer service. There are many metrics and surveys for measuring employee satisfaction. A business could use direct (surveys, interviews) or indirect (productivity, customer perception) measures of employee satisfaction.

The idea is that these leading measures will result in social benefits to employees, community, and the supply chain—ultimately leading to social responsibility. The social benefits can be measured with longitudinal studies of community and employee wellbeing directly or indirectly related to a business, as well as any human rights violations. Corporate social responsibility (CSR) is an idea that has been gaining popularity and use in the business world. Comcowich (2018) suggest that companies measure CSR in new customer acquisition, lifetime value, cost savings, and the bottom line. There are many other metric systems for CSR which could be applied to measure the overall goal of the societal aspect of the triple bottom line.

Last, but not least, in this model is the economic perspective of the triple bottom line balanced scorecard. The leading measures for environmental responsibility are use of natural resources, waste management, and contributions to climate change. The use of natural resources is the foundational leading measure for environmental impacts. Essentially, all raw materials come from natural resources. Built environments and agriculture require the use of land, in addition to many industries that rely on harvesting raw materials from above or below earth's surface. As such, it is essential to use natural resources in a way that does not deplete them for future use. There is both an intrinsic and extrinsic value to respecting and preserving natural resources.

Figure 4. Visual display of details on goals and measures of the environmental perspective of the TBL-BSC



The goal of natural resources use is to mitigate impacts on ecosystems from natural resources use. Impacts on ecosystems across a business include land use for building, mining, growing, manufacturing, selling, or marketing. These impacts also include things such as sound and light pollution, native habitat maintenance, raw material inputs, and energy sources. It is important for a business to acknowledge and track its use of natural resources. The metrics for this leading measure could include site-based environmental impact surveys or a percentage of land use (such as 20% of property is native habitat). It is challenging to measure such ecosystem impacts due to natural resource use, but it is possible and there is growing research and development into standard metrics for these impacts. A book published by Elsevier Inc. (2015) explores in-depth methods to measure environmental impacts and sustainability. SCS Global Services (2019) is a company that works in environmentally sustainable certification, auditing, testing, and developing standards. This company proposes various ways to measure land use and ecological impact associated with resource depletion.

Waste management is another important leading measure in the environmental perspective. This measure has the goal of managing waste by reducing, reusing, repurposing, repairing, rotting, or properly disposing it. This goal could be measured using a waste life cycle assessment (LCA), which analyzes waste associated with a product throughout its entire life cycle. This includes waste generated in extraction, transportation, processing, distribution, and end-of-life. LCAs are a relatively developed method of measuring environmental impacts of product from cradle-to-grave. Many researchers, such as Curran (2008), have

established frameworks and standards for conducting LCAs. Considering the whole life cycle of a product also includes the end-user waste—this means that any container or packaging would be considered in the waste stream of a company. This would drastically change the current system where massive amounts of waste can be considered an externality. The waste category applies to solid and liquid waste, both of which can be measured under most traditional systems (trash, recycling, nitrate runoff, and sewage). A comparable benchmark could be created by assessing the percentage of waste to initial inputs. By using waste products as an input material, a company could report "negative waste," since it is using an otherwise wasted product.

Contribution to climate change is essential as we adapt to and mitigate major planetary changes which are exacerbated by human activity. The goal of this leading measure is to reduce a company's contribution to climate change. This largely relates to energy use and air emissions, but also includes carbon sequestration (capturing and storing carbon from the air). Again, it is not easy, but quite possible, to quantify these measures. The US EPA (2019) has an online greenhouse gas equivalencies calculator and conversion data to measure air emissions with various global warming potentials (GWPs) into CO_2 equivalents (CO_2E). This creates a consistent unit of measurement to track emissions for heating, electricity, transportation, and manufacturing. This is a category that could be improved with increased energy efficiency, renewable energy, carbon capture, and alternative fuels. Building design and efficiency is another major part of the contribution to climate change, as buildings use a large amount of energy in heating, cooling, lighting, machinery, etc. The US Green Building Council (USGBC) uses an international Leadership in Energy and Environmental Design (LEED) rating system to certify "green" buildings. The most important category in the LEED rating system is "Energy and Atmosphere," because the top priority to USGBC is to address climate change contributions from the built environment.

Discussion and Implications

The TBL-BSC can be used to conceptualize and measure the triple bottom line. If companies were evaluated using these measures, their performance would look very different than in the traditional purely economic measures. If societal and environmental impacts were measured and evaluated, it would incentivize companies to use strategic management to work toward sustainability. Since the TBL is not consistently measured or reported, there is not a great incentive for companies to strive for social or environmental performance. Sustainability is generally considered optional in today's business world, but it would become a requirement if businesses were evaluated using the TBL.

It is necessary and ethical that companies consider their environmental and social impacts, in addition to financial performance measures. Firms have a responsibility to society, often called corporate social responsibility. This is true for US communities, and especially true for more vulnerable communities across the globe. Silvestre (2015) explores how companies with supply chains in emerging economies face extra challenges in sustainability, but also increased opportunity to set a precedence for more sustainable supply chain management in the local economy. Cobb (2015) argues that firms in developing countries play a leading role in determining societal-level income inequality. This means that companies have the profound opportunity to make social change not only within their own workforce, but also within the larger community. By outsourcing cheap labor to developing countries, companies are often contributing to income disparity throughout the society and setting an example of unsustainable supply chain management. Hollos, Blome, and Foerstl (2011) found that sustainable supply chains in Western Europe generally led to positive impacts on performance in all three aspects of the TBL. This shows the relationship between sustainability in the supply chain and increased economic performance.

Companies benefit from natural resources and ecosystem services. As such, they have a responsibility to maintain natural resources and stable ecosystems. Dean (2017) reports that a mere 100 companies are responsible for 71% of global greenhouse gas emissions over the past three decades. This means that companies have a great responsibility in mitigating changing atmospheric conditions and climate, since they have contributed to and benefited from environmental damage. Cai, Cui, and Jo (2014) conducted a cross-industry study from 1991-2012, which concluded that corporate environmental responsibility (CER) and firm risk are inversely related. The reduction in firm risk is a powerful incentive for companies to seek environmental responsibility. This is another example of how environmental responsibility can lead to increased financial performance.

There are many challenges to measuring the TBL. It can be difficult to measure and quantify many aspects of the TBL-BSC; however, it is possible to measure all of these key indicators. One big challenge is that many of the social and environmental measures lay beyond the immediate supply chain of an organization (Van den Berg, 2018). This means that the extraction or production of raw materials may have the biggest social and environmental impacts, but these impacts are usually viewed and recorded as externalities. The new proposed model of the triple bottom line balanced scorecard (TBL-BSC) would require businesses to work closely with their upstream and downstream partners to monitor, measure, and report the partners 'actions in regard to the TBL-BSC model.

If these measures of the TBL do not apply to upstream and downstream businesses, there is great incentive for companies to outsource "unsustainable" practices. For example, a company may want to reduce its environmental impacts in greenhouse gas emissions, so it closes down its factory and instead buys its finished product from overseas. If these overseas operations use less efficient technology and require additional shipments, this is a net increase in greenhouse gas emissions. If a business is not responsible for the TBL of upstream and downstream operations, then a company in this situation would appear to have reduced its environmental impact, but in reality, is contributing to a greater carbon footprint by emitting more greenhouse gases.

Future Research

There is a serious need for quantifiable metrics of the TBL. It doesn't matter how much we talk about things like the TBL, sustainability, and corporate social responsibility if there is no measurement system available to track these initiatives. Another challenge to the system is setting standards or benchmarks across industries and the global economy. Who is to set the standards? Can they be applied universally, across industries, cultures, and businesses? There is a great need for further development of measuring the TBL and coordinating across the global economy.

This proposed TBL-BSC requires further development. More specific conversions and comparable units need to be applied to many of the leading measures of the environmental and societal perspectives. This model also needs to be reviewed and

tested in the field. Future research would benefit from testing this model on a virtual or actual business to access its ease of use and relevance to strategic decision making. Additionally, there needs to be a benchmark for various industries and across nations to set standards and targets. This would require much further development, including input from experts in various fields, large-scale testing of the model, and building a database for comparative data. This is intended to be a dynamic model which is constantly improving with more research and testing.

A practical next step in the development of this framework is to build a spreadsheet quantitative model to calculate and quantify these impacts on the TBL. This quantitative model would collect input data from across a business and process it into output measurements to use in evaluating the TBL-BSC method. For example, this model would take into account the amount of electricity and heat used, distance of shipping, other emissions data, and carbon sequestration to calculate a CO_2 equivalence value to use in assessing the leading measure "contribution to climate change." Such a model can be built using existing calculations and monitoring systems, compiled into a user-friendly system with accurate inputs and quality output reports.

Since it is important for firms to consider the TBL, there have to be practical ways to measure such impacts. It is essential that research continue to address the TBL until a generally accepted standard is reached. If a business cannot measure its social and environmental impacts, it cannot effectively work towards sustainability and increased performance in the TBL. The proposed model in this paper is one preliminary step towards a more quantified system of measuring and assessing the TBL, using the balanced scorecard. With complete information about performance in the TBL, managers can make more informed and effective strategic decisions.

Conclusion

Sustainability, measured in business as the triple bottom line (TBL), is becoming increasingly important in strategic management. Increased sustainability can lead to a competitive advantage, creation of a niche market, reduced costs, and ultimately increased financial performance. Therefore, it is important to consider the TBL in strategic management and planning. In order to do this, there must be a measurement and benchmarking system in place to evaluate performance in the TBL. The balanced scorecard (BSC) was created to measure non-financial leading measures of economic performance, making it a good candidate for measuring the TBL. The proposed framework in this paper offers a conceptual, organized, and adaptable way to measure the TBL using an expanded version of the BSC, called the triple bottom line balanced scorecard (TBL-BSC).

Integrating sustainability into a business requires buy-in across the business, particularly corporate leadership. As such, it is essential that top management have access to information about environmental and social impacts to make well-informed corporate-level strategic decisions. Goals toward sustainability need to be built into corporate mission and vision in addition to operational practices. Top management decisions about sustainability can trickle down the entire business. Therefore, it is important that top management and other strategic decision-makers are aware of the importance of sustainability and have measurements of performance in the TBL. Without an accurate and consistent way to measure a company's social and environmental impact, management cannot effectively utilize the TBL to enhance financial performance and make a positive (or less negative) impact on the communities and environments in which they operate.

It is vital for business success and continuation of human civilization to consider environmental and social responsibility when assessing a company. This framework is a step towards a more quantified model than the many theoretical frameworks currently available. Much further testing and development is required of this model before it could be widely adopted. This framework, conceptually and specifically, can be a useful tool for management to measure the TBL and thus make more informed strategic decisions. Eventually, there needs to be a consistent measurement and quantitative model for the TBL across businesses and industries. Sustainability will become even more important with changes in culture, earth's climate, natural resources, and technology. Thus, it is essential that businesses be able to measure the TBL and incorporate it into strategic management.

Reference

Auderbrand, L. (2010). Sustainability in strategic management education: The quest for new root metaphors. Academy of Management Learning & Education, 9 (3): 413-428.

Borland, H., Ambrosini, V., Lindergreen, A., and Vanhamme, J. (2016). Building theory at the intersection of ecological sustainability and strategic management. Journal of Business Ethics, 135 (2): 293-307.

Cai, L., Cui, J., and Jo, H. (2014). Corporate environmental responsibility and firm risk. Journal of Business Ethics, 139 (3): 563-594.

Cantele, S. and Zardini, A. (2018). Is sustainability a competitive advantage for small businesses? An empirical analysis of possible mediators in the sustainability-financial performance relationship. Journal of Cleaner Production, 182 (1): 166-176.

Cobb, J.A. How firms shape income inequality: Stakeholder power, executive decision making, and the structuring of employment relationships. Academy of Management Review, 41 (2).

Comcowich, W. (2018). Why companies should measure corporate social responsibility. Glean.info. Retrieved November 22 from <https://glean.info/why-companies-should-measure-corporate-social-responsibility/>

Curran, M.A. (2008). Life-cycle assessment. Encyclopedia of Ecology, 4: 2168-2174.

Dean, S. (2017). These 100 companies are to blame for 71% of the world's greenhouse gas emissions. Science Alert. Retrieved November 5 from <https://www.sciencealert.com/these-100-companies-are-to-blame-for-71-of-the-world-s-greenhouse-gas-emissions>

Hubbard, G. (2009). Measuring organizational performance: Beyond the triple bottom line. Business Strategy and the Environment, 19: 177-191.

Hollos, D., Blome, C., and Foerstl, K. (2011). Does sustainable supplier cooperation affect performance? Examining implications for the triple bottom line. International Journal of Production Research, 50 (11): 1-19.

Kemp, R., Schot, J., and Hoogma, R. (1998). Regime shifts to sustainability through process of niche formation: The approach of strategic niche management. Technology Analysis & Strategic Management, 10 (2): 175-195.

Klemes, J. (2015). Assessing and measuring environmental impact and sustainability. Clean Technology and Environmental Policy, 17 (3): 577-578.
Edspira. (2018). The balanced scorecard-Simplest explanation ever [video]. Edspira: The Free Business School. Retrieved November 14 from <https://www.youtube.com/watch?v=O71dalS6x_M>
Fakhimi, M., Mustafee, N., & Stregioulas, L. (2016). Modeling for the triple bottom line: An investigation of hybrid simulation for sustainable development analysis. 2016 Winter Simulation Conference. <DOI:10.1109/WSC.2016.7822193>
Godfrey, M. & Manikas, A. (2012). Integrating triple bottom line sustainability concepts into a supplier selection exercise. Business Education & Accreditation, 4 (1): 1-12.
Kenton, W. (2019). What is the triple bottom line (TBL)? Investopedia. Retrieved November 20, 2019 from <https://www.investopedia.com/terms/t/triple-bottom-line.asp>
Lim, S. (2019). Balanced scorecard. Investopedia. Retrieved November 24 from < https://www.investopedia.com/terms/b/balancedscorecard.asp>
SCS Global Services. (2019). About us: Company. Retrieved November 23 from <https://www.scsglobalservices.com/about/company>
Schneiderman, A. M. (1999). Why balanced scorecards fail. Journal of Strategic Performance Measurement: 6-11.
Silvestre, B. (2015). Sustainable supply chain management in emerging economies: Environmental turbulence, institutional voids and sustainability trajectories. International Journal of Production Economics, 167: 156-169.
Stenzel, P. (2010). Sustainability, the triple bottom line, and the global reporting initiative. Global Edge Business Review, 4 (6):1-2.
The University of Scranton. (2019). Ideas for creating an index to measure triple bottom line. Retrieved November 21 https://elearning.scranton.edu/resource/business-leadership/ideas-for-creating-an-index-to-measure-triple-bottom-line
US EPA. 2019. Greenhouse gas equivalencies calculator- Calculations and references. Retrieved November 24 from https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references
Van den Berg, M. (2018). Triple bottom line: measuring social and environmental PKIs. ChainPoint. Retrieved November 14 from <https://blog.chainpoint.com/blog/triple-bottom-line-measuring-social-and-environmental-kpis>
Walsh, P. and Dodds, R. (2017). Measuring the choice of environmental sustainability strategies in creating a competitive advantage. Business Strategy and the Environment, 26 (5): 672-687.

Attachment

Table 1: List of key findings of recommended metrics for environmental, social, and economic performance, listed by author.

Authors	Environmental	Social	Economic
Stenzel, 2010	• Air quality • Water quality • Energy used • Waste produced	• Labor practices • Community impacts • Human rights • Product responsibility	• Sales, profits, ROI • Taxes paid • Cash flows • Jobs created
The University of Scranton, 2019	• Concentration of nitrogen • Greenhouse gas emissions • Amount of waste generated • Use of post-consumer, recycled material • Fossil fuel consumption • Water consumption • Hazardous waste • Solid waste management • Changes in land use	• Median household income • Unemployment rate • Female labor participation (%) • Educational levels (%) • Crime per capita • Average life expectancy • Average commute time	• Average incomes • Underemploy-ment costs • Job growth (%) • Establishment churn • Percentage of firms in each sector • Employment distribution by sector • Revenue by sector
Kimmet & Boyd, 2004	• Material impacts (LCA) • Energy consumption • Building energy footprint • Water consumption & recycling • Greenhouse gas emissions • Waste (hazardous or not), recycling, removal • Disclosure of non-compliance with environmental regulations • Quality of overall built environment (aesthetics, satisfaction) • Use of footage	• Disclosure of health and safety records • Level employee training and awareness • Employee working conditions • Policies for managing stakeholders • Transparency in marketing and management • Adequate employee insurance coverage • Human rights training • Are building and work conditions in line with cultural values?	• [None listed]

Global Reporting Initiative, 2018	• Materials • Energy • Water and effluents • Biodiversity • Emissions • Effluents and waste • Environmental compliance • Supplier environmental assessment	• Employment • Labor/management relations • Occupational health and safety • Training and education • Diversity and equal opportunity • Non-discrimination • Freedom of association and collective bargaining • Child labor • Forced or compulsory labor • Security practices • Rights of indigenous peoples • Human rights assessment • Local communities • Supplier social assessment • Public policy • Customer health and safety • Marketing and labeling • Customer privacy • Socioeconomic compliance	• Economic performance • Market presence • Indirect economic impacts • Procurement practices • Anti-corruption • Anti-competitive behavior
Hubbard, 2009	• EMS plant certified • Spillages • Nitrogen discharge • Suspended solids discharge • Wastewater reuse	• Lost time injury frequency • Reliability of supply (1-10 scale) • Responsiveness (1-10 scale) • Overall customer satisfaction (1-10 scale) • Sponsorship • Education	• Sales growth • Profit growth • Return on equity • Return on assets • Gearing

Figure 5: Visual layout of a balanced scorecard, retrieved from a video by Edspira (2018)

INDEX OF PROGRAM CONTRIBUTORS

A

Adu, Sandra Fosuhemaa; D1.6

Anderson, Anne-Marie; D1.4

Alexis, Jacques; D2.5

Aspelund, Arild; D2.5

B

Bertaux, Nancy; D1.5

Bishop, Sherese; D2.5

Bose, Ron; D1.2

C

Caraher, Shawn; D2.5

Ceulemans, Kim; D2.3

Cocke, Gary; D2.3

Cotte, Alexander; D1.7

Czyżewska-Misztal, Dorota; D1.7

D

Dau, Luis; D2.4

Delmas, Magali (Maggie); D1.1

Deng, Shu; D1.5

Dess, Gregory; D1.4

Donahue, Jumanne; D2.5

E

Easter, Sarah; D2.3

F

Frey, John; D1.3

G

Goktan, Banu; D1.4

Greer, Peter; D2.1

H

Hanif, Navid; D2.7

Hermundsdottir, Fanny; D2.5

Hu, Songcui; D1.5

Hugo, Nichole; D1.7; D2.3

Hulpke, John; D1.4

J

Jabran, Award Said; D1.4

Jerzyk, Ewa; D2.6

Joshi, Bhushan; D1.3

K

Kapur, Rajan; D1.2

Kathuria, Nishant; D1.6

Kazmierczyk, Jerzy; D1.5

L

Lapinski, Krzysztof; D2.2

Lee, Seunghyun; D2.4

Lee, Wei-Jen; D1.2

Lei, Zhu; D2.7

Lima, Afonso; D2.4

Loomba, Paras; D1.2

Lynn, Monty; D2.3

M

Malecek, Steven; D2.6

McMullin, Casey; D2.7

Metelski, Adam; D1.5

Miloud, Yasmine Ben; D1.7; D2.3

Miller, Toyah; D2.2

Moore, Elizabeth; D2.4

Moorthy, Srikantan; D1.3

Morrison, Alan D.; D1.6

Mota, Rita; D1.6

Mruk-Tomczak, Dobrosława; D2.6

Mthombeni, Raphael; D2.6

Myers, David H. ; D1.4

N

Ncube, Lashier; D2.6

Nestorowicz, Renata; D2.6

Nishi, Hirofumi; D1.6

Nirmal, Nikunj; D1.3

Nnachi, Robert; D2.4

P

Pardo, Clara; D1.7

Peabody, S. Drew; D1.6

Peng, Mike; D1.1; D1.6

Pirkul, Hasan; D1.1

Puffer, Sheila M.; D2.4

Q

Qian, Cuili; D1.6

Quttainah, Majdi; D2.4

R

Rajvanshi, Noorie; D2.2

Redeker, Mike; D2.1

Reichert, Carolyn; D1.6; D2.3

Rogala, Anna; D2.6

S

Samotyja, Urszula; D2.6

Sharman, Piyushi; D2.5

Seoudi, Hassan; D2.7

Shumba, Gabriel; D2.2

Sielicka-Różyńska, Maria; D2.6

Skeirik, Kaleel; D1.5

Skuza, Agnieszka; D1.1, D2.6

V

Voelker, Paul; D2.2

Vyas, Manish; D1.3

W

Wang, Jiyu; D1.5

Wang, Xinrang; D1.5

Wesley, David; D2.4

Wilken, Grace; D1.7

Woldu, Habte; D1.1, D2.1, D2.7

X

Xia, Jun; D1.5

Z

Zielińska-Chmielewska, Anna;

D2.6

Zoogah, Baniyelme D.; D1.1, D1.7

Zumitzavan, Vissanu; D1.5

Zydorek, Hubert; D1.1, D2.7

ACKNOWLEDGEMENTS

University of Texas at Dallas

Sustainable Global Business Initiative
jindal.utdallas.edu/centers-of-excellence/cgb/sustainable-global-business-initiative/
Center for Global Business
jindal.utdallas.edu/centers-of-excellence/cgb/
Jindal School of Management Office of the Dean
jindal.utdallas.edu

Co-Sponsor Schools

Poznań University of Economics and Business
ue.poznan.pl/en/
Xavier University
www.xavier.edu

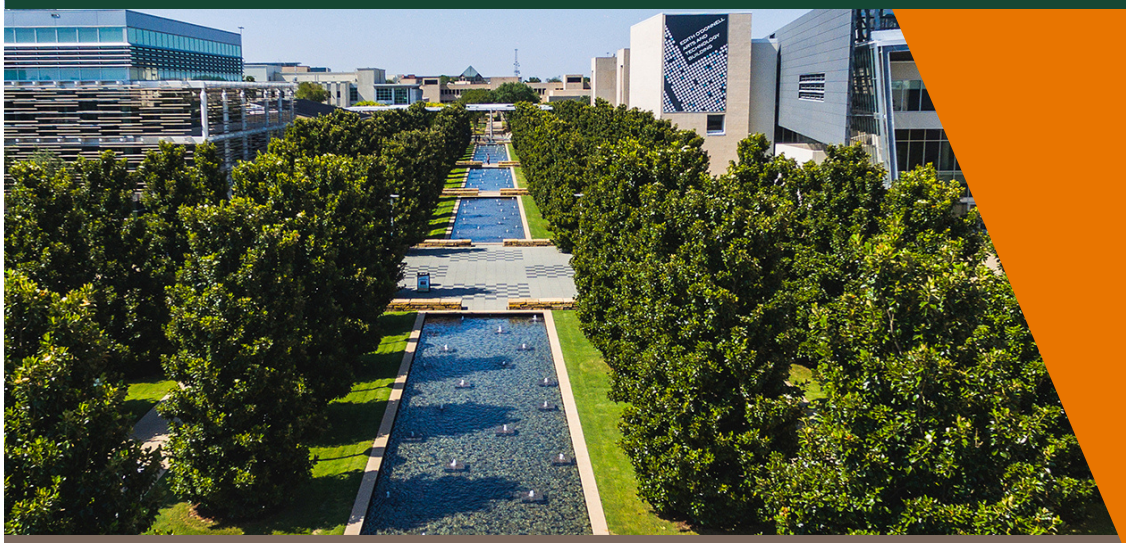
Co-Sponsor Organizations

Ann and Jack Graves Charitable Foundation
Center for Asian Studies, UT Dallas
asianstudies.utdallas.edu
City of Richardson, Texas
www.cor.net
Ericsson
www.ericsson.com/en
EY
www.ey.com/en_us
Global Himalayan Expedition
www.ghe.co.in
Hewlett Packard Enterprise
www.hpe.com/us/en/home.html
HOPE International
www.hopeinternational.org
Siemens
www.siemens.com/global/en.html
Pfuma Funds
pfuma.fund
Tech Mahindra
www.techmahindra.com/en-in/?f=2029536783
US-China Chamber of Commerce
www.uscccdallas.org
US-India Chamber of Commerce
usicoc.biz

Sustainability Conference Team

Imelda Freddy (Staff)
Satvik Baccu
Zhu Lei
Mustafa Malik
Mubaraka Patanwala
Grace Peng

THE UNIVERSITY OF TEXAS AT DALLAS



About the Sustainable Global Business Initiative (SGBI)

The Sustainable Global Business Initiative (SGBI) is a collaboration between the Ann and Jack Graves Charitable Foundation and the Center for Global Business in the Naveen Jindal School of Management at The University of Texas at Dallas. The goal of the initiative is to promote economic advancement and poverty alleviation in the Dallas-Fort Worth area and in developing countries. This initiative also provides scholarships for students and supports faculty conducting international sustainable poverty alleviation projects, with a particular focus on Africa.

About the Center for Global Business (CGB)

The vision of the Center for Global Business in the Naveen Jindal School of Management at The University of Texas at Dallas is to become a leading center for global business in the United States. Our mission is to develop globally competent leaders and engage stakeholders to meet future business challenges through high-quality learning, world-class research, and collaborative partnerships. Across campus, the CGB works with various centers, schools, and departments to bring and share knowledge of business, foreign languages, area studies, and sustainability. Through courses, competitions, conferences, networking, company visits, and speaking events, globally minded students are able to benefit from CGB offerings.

THE UNIVERSITY OF TEXAS AT DALLAS
Naveen Jindal School of Management
Sustainable Global Business Initiative

THE UNIVERSITY OF TEXAS AT DALLAS

About The University of Texas at Dallas

The University of Texas at Dallas is a top public university located in one of the nation's fastest-growing metropolitan regions. Launched in 1969, UT Dallas—currently with more than 28,000 students across eight schools and 140 degree programs—has evolved into one of the best research institutions in Texas. The University attracts the brightest minds in engineering, management, math, and science, and boasts one of the top business schools in the state. As the region's economy continues to grow, the University has become more culturally diverse, attracting highly motivated, top-performing students from around the world.

About Ann and Jack Graves

Ann and Jack Graves worked as a team for years in civic activities and areas of community service. Ann graduated with a bachelor's degree in English from the UT Dallas School of Arts and Humanities in 1983 and has been volunteering for dynamic causes and organizations ever since. Her interests are diverse, but her impact is evident. Her involvements include serving on the board of directors for Girl Scouts of the USA and as a member of the board of trustees for the University of Tulsa. A supporter of the arts, she was vice president of development for the Tulsa Ballet, on the National Committee for the Performing Arts and volunteered with the Oklahoma Arts Institute. Ann has also worked professionally in communications, public relations and fund development for Texas Oil and Gas, Gaston Episcopal Hospital and Jane Phillips Medical Center. Ann received The University of Texas at Dallas Distinguished Alumni Award. Graves is not the only UT Dallas graduate in the family: Her son, Mike Redeker, earned an MBA and MS in Management from the Naveen Jindal School of Management.

ANN & JACK GRAVES FOUNDATION CONFERENCE SPONSORS & PARTNERS

The Sustainable Global Business Initiative and the Center for Global Business at UT Dallas thank the following sponsors and partners for making the Ann & Jack Graves Foundation Conference possible through their generous contributions and cooperation.